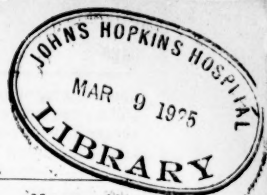


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ORIGINAL ARTICLES

THE ACUTE (NON-TRAUMATIC) ABDOMEN*

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I AM indeed glad to take part in this evening's program and especially glad to speak on the subject your secretary asked me to discuss, the acute non-traumatic abdomen. All of us, excepting certain types of specialists, meet with this condition from time to time in one form or another. The subject therefore is a practical one and I shall try to handle it in that way. What is the best definition of the acute abdomen? It is a sudden onset of acute abdominal pain, preceded or followed by nausea or vomiting, or both, with tenderness and rigidity over the whole abdomen, as a rule, but more pronounced over the most painful area which is suggestive of the site of the lesion, with or without depression or shock.

After the lapse of several hours the acute abdomen becomes the abdomen with peritonitis. Peritonitis not only is the bug-bear of the surgeon, but it so often clouds the picture that it makes a differential diagnosis or a positive diagnosis impossible; it is therefore no exaggeration to say that for an acute abdomen the surgeon can never be called too early, but he can be called too late.

The two most important questions to be settled in the presence of the acute abdomen are first, whether to operate, and secondly, when to operate. From my experience with thousands of these cases I feel justified in saying if there is any acute condition arising in the human subject which should be the province of the surgeon alone, it is the acute abdomen. This opinion is not a biased one, but is founded upon a knowledge and an understanding of the vagaries of the pathology of the condition and the fact that its pathologic possibilities are almost unlimited. This knowledge can only be gotten by having made a careful study of the pathology of the living in all stages of the serious condition in question. Who can better foresee the dangers of ultra-conservatism as against ultra-radicalism than the surgeon who is daily delving into the recesses of the peritoneal cavity to rid it of its hidden enemy? To be radical in the treatment of the acute abdomen, in its early stages, is to be ultra-conservative in that in all likelihood

life will be conserved, while to operate late too often means paving the patient's way to eternity. What are the chief causes of death? Delayed operation and peritonitis. A third factor is delayed diagnosis. Thus is formed a vicious circle, for peritonitis, as I have already said, masks the diagnosis and thus favors delayed operation. Too often, also, while waiting for a rise in the leucocyte count, medical treatment is instituted and the most favorable opportunity for a simple uncomplicated operation is lost.

Of the many conditions causing the acute abdomen appendicitis is the most common, next in order being acute cholecystitis, and a close third the acute affections of the female internal genitalia, such as acute salpingitis, a leaking or ruptured pus tube, acute pelvic infection the result of an abortion or miscarriage, or a full term delivery, ruptured ectopic pregnancy, tubal bleeding, tubal perforation, twisted pedicle of an ovarian cyst, and pedunculated fibroid.

I shall not dwell on these, as I take it you prefer to have me discuss the acute abdomen the result of conditions arising above the ileo-pectineal line. I may say, however, that the acute lower abdominal conditions in the female, other things being equal, are rather easily diagnosed because of the information to be gained by vaginal manual examination.

The conditions above the ileo-pectineal line which cause the acute abdomen next to acute appendicitis and acute gall bladder disease, including rupture of the gall bladder, are acute primary intestinal obstruction and acute obstruction arising in the presence of a chronic obstruction; perforated duodenal and gastric ulcer; acute pancreatitis with focal or massive hemorrhage; mesenteric thrombosis; perforated ulcer of the small or large intestine; acute tubercular peritonitis, and primary pneumococcal peritonitis.

The pathologic types of acute appendicitis are catarrhal, perforative, phlegmonous and gangrenous, the latter occurring either as moist or as dry gangrene. In acute appendicitis the appendix is practically always gangrenous, the gangrene being either local or involving the mucous

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membrane, or a part of or the entire appendix. The term acute catarrhal is not a good one because it is impossible to diagnose it and further it is misleading because it leaves the patient with the impression that the condition is not dangerous and therefore operation is unnecessary.

The diagnosis of acute appendicitis is usually made by the attending physician, the only exception being perhaps where the appendix occupies the pelvis or lies high behind the cecum and colon or to the outer side of the colon. When the appendix occupies the pelvis there is bilateral tenderness to external palpation as well as to vaginal and rectal touch, and not uncommonly bladder irritation or inability completely to empty the bladder. The presence of bladder irritation is readily understood when we consider the close relationship between the appendix in a pelvic position and the bladder and the involvement of the vesical serosa by extension of the peritoneal inflammation. But acute pelvic appendicitis may very often simulate inflammation of the fallopian tubes and thus cause confusion.

The most important point in differentiation of acute appendicitis and inflammation of the fallopian tubes is the history. Pelvic appendicitis in the young girl is of more moment than in the boy, but bad enough in either. I regard appendicitis a factor in causing sterility in the female, and thus it may be a contributing cause of race suicide. Did time permit I should like to dilate upon this aspect of appendicitis as I have seen so many disastrous results of the disease in women.

In acute appendicitis the two most important guides in making a correct diagnosis are, the history, and manual palpation. The leucocyte count may be of some moment, but it is unimportant compared with the history and what is to be learned by palpation. This is true not alone of appendicitis, but of nearly all of the conditions causing the acute abdomen. Our special senses, plus common sense, are our greatest assets compared to which the laboratory findings sink into insignificance. To be perfectly plain, which I presume you want me to be, too many general practitioners rely too much on the leucocytosis. As a surgeon I recognize its importance but it is of little moment compared with the importance to be derived from palpation. It too often happens to me to be called on the telephone and to be asked to hold myself in readiness to see a case that suggests appendicitis but to wait for the result of the leucocyte count, which if it is not high will make consultation unnecessary. This is an instance of depending on the leucocytosis for making a diagnosis and as an indication for operation. Needless to say this practice has sacrificed many a precious life. The term "Deadly scientific" may well be applied here. I have no hesitancy in saying that exquisite tenderness is more significant of the presence of pus or an acute in-

flammatory exudate, than the leucocytosis. I rarely if ever ask for a leucocyte count, for this I can approximately tell from the degree of tenderness and rigidity. When I most prefer to know the number of leucocytes is after the operation. I shall again refer to the leucocyte count as a fallacious diagnostic measure when discussing perforated ulcer.

A word about appendicitis in children. Much has been written upon this disease in early life and I regret to say much of it is confusing. As I have observed it, the only difference between acute appendicitis in the child and in the adult is that, as one would naturally expect, the child does not withstand severe operation so well as the adult; which is also true in the other extreme of life,—the aged. Post-operative shock is more severe in the young child than in the adult, but on the other hand, the child reacts better and recuperates more easily from the effects of operation. In making the diagnosis we have to depend more upon what the mother or the child's nurse tells us, than upon what the child can tell. Here our five senses together with the sixth sense—common sense or intuition—play the important role. However when the child is old enough to talk as well as understand, the diagnosis is made with greater ease. How often have I heard a child say before the diagnosis has been made, "Mother, don't let the doctor touch my right side," and thus itself spells the diagnosis. The most common errors in the diagnosis of acute appendicitis in children, as I have observed them, are mistaking pneumonia or intussusception for acute appendicitis. In the child, as well as in the adult, but particularly in the child, in the presence of rapid respiration, an unusually high leucocyte count, temperature over one hundred and three, with tenderness and pronounced rigidity of the abdominal wall of the upper right quadrant, I make it a rule to advise deferring operation until we can be reasonably sure of our ground. I admit that a terminal inflammation of an appendix in a high position can make a confused picture, but if in doubt, caution is wise.

When the appendix holds a high position, as it very commonly does, confusion may also arise in differentiating between inflammation of the gall bladder, pyelitis, sub-acute perforated duodenal ulcer, ureteral inflammation and acute hematogenous infection of the right kidney.

The chief points in the differentiation of acute inflammation of the gall bladder and appendicitis are the history, the palpatory findings, and the more pronounced gastric symptoms in the case of the diseased gall bladder; in the latter as well as in acute appendicitis, one may obtain valuable information by asking the patient to take a moderately deep breath. In the gall bladder case this cannot be done because of the pain it causes due to the close relation of the gall bladder and the diaphragm, while in appendicitis the patient is able to take a moder-

ately deep breath before the pain is felt. This can always be verified by having the patient cough, which gives the same result. After the first few hours following the onset of inflammation in either the appendix or the gall bladder, light, gentle palpation will usually make the diagnosis reasonably sure. Here again I emphasize the importance of a thorough physical examination. Next to the careful interpretation of a carefully taken history, I rely mostly upon the sense of touch. In passing I would say that a positive differential diagnosis between these two conditions cannot always be made especially in the very early hours of the two affections. If the case is an acute, calculous cholecystitis the colic which is so characteristic may be a differential guide; also in the first few hours of acute cholecystitis the gall bladder is not usually palpable, while later on it is apt to be. An enlarged gall bladder can sometimes be demonstrated to inspection by arching the lumbar spine by placing a round pillow under the patient and having him breathe deeply.

In the differentiation of acute appendicitis from pyelitis we should always think of the latter if right-sided acute abdominal pain occurs in the pregnant woman. The kidney should be palpated by grasping it gently between the two hands the left in contact with the loin posteriorly and the right with the abdominal wall anteriorly, and at the same time asking the patient to take a full breath with the mouth open. This will often give valuable information. If by this means there is still doubt cystoscopic examination, with or without ureteral catheterization, will clear away the doubt. Examination of the urine of course must not be neglected. In acute hematogenous infection of the right kidney the question of a fulminating inflammation of an appendix in a high position may arise. In the renal infection the patient is hard hit, in the shape of chills, acute pain, and high temperature, and the kidney is exquisitely tender to palpation. Where the acute appendix is in intimate relation with the ureter there will always be vesical irritation and pain referred along the line of the ureter with tenderness over the entire ureter. There is also a certain degree of abdominal rigidity over the line of the ureter when the latter is inflamed. But the absence of a palpable, more or less circumscribed mass and the presence of pus and red blood cells in the urine, should indicate the diagnosis.

If the patient with acute appendicitis is not seen until a diffused peritonitis is present, the diagnosis of the lesion cannot always be made with certainty, in fact it may be impossible to make it at all. In these circumstances a carefully taken history is of the greatest value. For example, take the case of a ruptured duodenal ulcer not seen until from thirty-six to forty-eight hours after the occurrence of the perforation, in the absence of an ulcer history and the

presence of fluid in the lower right abdomen, the differential diagnosis is not always possible especially since this collection of fluid forms a swelling which simulates the localized or circumscribed peritonitis so frequently seen in acute appendicitis.

In discussing acute appendicitis a word should be said about acute diverticulitis of the pelvic colon, a condition that very closely simulates acute pelvic appendicitis. Acute diverticulitis occurs more often in older persons than appendicitis. A reliable history will show there has been previous bowel derangement in the shape of attacks of diarrhoea and constipation, with or without flatus and with or without mucus and blood in the stools, and the early pain (in diverticulitis) is usually referred to the hypogastrium. The treatment of the two conditions is widely different when these cases are seen and diagnosed early. In acute diverticulitis, as in acute appendicitis, only the clinical and not the pathologic diagnosis is possible; in other words, it is impossible to differentiate between inflammation of the coats of the sigmoid and of a diverticulum with or without perforation.

Acute intestinal obstruction is a common cause of the acute abdomen and is most often the result of an external strangulated hernia. While the diagnosis of the latter is, as a rule, easily made, this cannot be said of the internal variety of intestinal obstruction unless seen early, when the diagnosis should be evident enough to warrant immediate opening of the abdomen. To pursue any other course than immediate operation is to consign the subject to the eternal rest of the grave. Medical treatment in such a case is criminal. In keeping with this discussion a word as to external strangulated and also of non-strangulated hernia may be in place. All irreducible non-strangulated external herniae should be operated. Any less radical treatment, barring ultra-contraindications, is to court disaster sooner or later. Taxis and the other palliative measures so frequently resorted to should be relegated to the past never to be revived. In external strangulated hernia taxis is one of the factors in producing the fifty per cent. mortality of this condition. It runs the risk of inflicting great damage to the strangulated bowel, or omentum as the case may be, and of producing hemorrhage of the mesentery, which impairs the nutrition of the bowel, and the combination makes a resection necessary which always adds to the gravity of the case.

Acute obstruction, while it occurs more frequently as a primary condition, may occur secondary to chronic obstruction. Acute internal intestinal obstruction when seen early, before the advent of peritonitis, should be recognized by the following symptoms: Acute intermittent abdominal pain, nausea soon followed by vomiting, hyperperistalsis occurring in waves, abdominal tenderness and inability to pass

flatus. As this form of obstruction usually involves the small bowel, nothing is learned by the administration of an enema and the subsequent evacuation. While it does not do any harm except to increase the peristalsis and cause the patient more pain, it does delay operation. The most common cause of acute intestinal obstruction in the adult is caused by adhesions or bands, which is also true of post-operative intestinal obstruction. This same train of symptoms occurring in a patient with an abdominal scar the result of a previous operation spells obstruction. It is therefore important to obtain this information in a case of suspected obstruction as well as carefully to inspect the naked abdomen. Next in frequency to obstruction by adhesions or bands in the adult is volvulus and internal hernia with a congenital or an acquired hole in the mesentery, the foramen of Winslow, or one of the retroperitoneal fossa.

Not uncommonly the acute abdomen is caused by perforated duodenal or gastric ulcer, and perforation of an ulcer in the small intestine or in the large bowel. The last-named are of course rare in comparison to the first-named.

In the case of a perforating gastric or duodenal ulcer presenting a typical history the diagnosis is not hard to make. The symptoms are: Onset of sudden agonizing pain appearing like lightning out of a clear sky, immediately followed by board-like rigidity of the abdominal walls, with the patient assuming a fixed position, and when attempting to change his position he moves the entire body as a whole. This is so characteristic that when once seen is never forgotten. In the majority of the early cases which I have operated upon the diagnosis, if not made by the attending doctor, has been made by one of my internes. I have seen the condition simulated only by a fulminating acute appendicitis where perforation has occurred at the base of the appendix making the condition practically an acute perforation of the cecum. If a leucocyte count cannot be made without delaying operation, operate at once without it. To wait in these cases and give peritonitis a chance to develop is to cast the responsibility for the death upon the surgeon, whereas it belongs to him who waits for the demonstration of a leucocytosis. Plainly stated: In order to prevent mortality surgery must anticipate peritonitis. During the present winter a case of this kind was admitted to the Lankenau Hospital. There was a diffused peritonitis and the diagnosis of a perforated intestinal ulcer was made by the intern. The patient was so far gone that I refused to operate. The dead, not the living autopsy revealed a perforation with the belly full of pus. A number of cases of this kind have occurred on my service in the last few years.

In subacute perforated duodenal ulcer, in the absence of a clear history of duodenal ulcer and

in the presence of a palpable gall bladder or a palpably diseased appendix in a high position, a correct diagnosis is also not always possible. In these conditions the most that can be expected, at least in many cases, is the diagnosis of pathology responsible for the symptoms which can be relieved only by surgical interference.

A serious condition causing the acute abdomen is acute pancreatitis, which is seldom diagnosed until the abdomen is opened. It is usually associated with infection of the biliary tract thus making disease of this tract all the more important. It occurs in both men and women past middle life and usually in the obese subject who has over-indulged in eating and drinking. Its onset is sudden with severe agonizing pain occasionally referred to the left shoulder, immediately followed by profound shock. The severity of the pain depends upon the amount of hemorrhage that has taken place in the pancreas, that is whether it is focal or massive.

In addition to the depressed state of the patient there is cyanosis, rapid, feeble pulse and persistent vomiting, neither regurgitant nor fecal. Examination reveals swelling of the upper abdomen with rigidity of the abdominal walls and exquisite epigastric tenderness. The breathing is entirely thoracic. There is often a previous history of gall bladder dyspepsia, with perhaps slight jaundice. In the general run of cases of acute pancreatitis immediate operation is indicated. In the ultra-acute case however the patient's condition is too serious for immediate operation; and acute pancreatitis caused by foci of bleeding will recover without operation. The latter type of pancreatitis is, I am reasonably sure, more common than is generally supposed. I believe a number of the cases diagnosed acute indigestion where there is severe epigastric pain and tenderness with pronounced depression are of this nature.

Mesenteric thrombosis, torsion of the omentum, partial or entire, as a cause of the acute abdomen call for immediate laparotomy. The clinical diagnosis cannot be made with any certainty in any of these conditions and delay in operating will result in a fatality.

Tubercular peritonitis may appear suddenly and violently and cause such acute symptoms as to be mistaken for ileus or appendicitis, therefore it deserves to be mentioned in discussing the acute abdomen.

A word about typhoid perforation and typhoid peritonitis as causes of the acute abdomen. In my experience typhoid perforation is always accompanied by severe pain, while in typhoid peritonitis not accompanied by a perforation but by extension of the ulcerative inflammation involving the intestinal serosa, the pain at the onset of the peritonitis is not severe. In the former, operation cannot be done too early, while in the latter operation is contra-indicated.

Pneumococic peritonitis so closely simulates the peritonitis of appendicitis that the diagnosis is usually not made until the abdomen is opened.

I have not attempted, in the course of this limited address, to discuss all the possible factors which may give rise to an acute abdominal crisis, nor could I consider all the possibilities

which the acute abdomen may carry with it. I have endeavored to dwell only on the more common aspects of the subject and to present them in a simple manner which I hope will prove of practical value to those who so courteously invited me to be with you this evening and to all of you who have honored me with your presence.

STUDIES IN LIVER FUNCTION

1. Methods for Determining the Concentration of Bile Acids and of Pigments Present in Duodenal Contents

BY C. W. McCLURE, M. D., ELDORA VANCE, B. SC., AND M. C. GREENE, Ph.D.

[From the Evans Memorial, Boston]

A CONSIDERABLE array of tests for estimating the functional condition of the liver has been proposed.¹ Of all these tests the one which has gained the most favorable recognition is the now well known phenoltetrachlorophthalein test; and it seems well established that this test will show gross disturbances in liver function. The various other tests, while usually based on sound theory, have either failed to give uniformly sufficiently reliable results or have been technically too complicated for general use; and the very nature of the practise of clinical medicine is such that it prohibits the use of complicated methods unless results of great practical importance are obtained from them. There is, then, need of methods which give reliable results and are not prohibitively complicated. However, so many functions are ascribed to the liver that a single test can hardly be expected to give adequate information concerning all of them. Unfortunately, tests for ascertaining the liver's functional condition *in vivo* must rest largely on examinations of the blood or of the duodenal contents, and the obtaining of either of these presents technical difficulties. Furthermore, the state of very complicated functions is to be determined. Thus, it would seem that tests for ascertaining the state of the various functions of the liver must necessarily be somewhat complicated. However, the methods which will be described in the present communication require apparatus common to the clinical laboratory, and the technic can be acquired by one familiar with colorimetric methods.

The present authors have devised a series of arbitrary methods for estimating the concentrations of various components of the bile present in duodenal contents. The methods offer a means of ascertaining the normal concentration of these components, which gives a basis for determining how they are influenced by diseases affecting the liver. In this way the methods afford data bearing on the functional condition of the liver. One of the methods has already been published,² and the present communication

describes two others; i. e., methods for estimating the concentrations of the bile acids and of the pigments found in duodenal contents.

THE ESTIMATION OF THE CONCENTRATION OF BILE ACIDS OF DUODENAL CONTENTS

Numerous studies have been made on the metabolism of bile acids in the lower animals. A resumé of this work is available in many textbooks of physiological chemistry, such as Hammerstein and of Mathews; while more recent studies are represented in the published reports of Whipple³ and coworkers. Whipple severely criticized all methods devised for the quantitation of the biliary acid contents of bile; and devised another method applicable to the bile of dogs. Among the results obtained by Whipple's work, those of special interest to the clinician were that the concentration of bile acids is increased by the administration of taurocholic acid to dogs, that this concentration is influenced by the diet and by the functional condition of the liver. Whipple contends that bile acids are of both endogenous and exogenous origin.

Schmidt and Dart⁴ modified the method devised by Whipple so that it would be applicable to the quantitation of the biliary acid content of human bile. However, their method is altogether too technical to permit of its application to clinical purposes. For these reasons, the present authors found it necessary to devise the following new method. The method is a simple one and permits the estimation of the concentration of bile acids in duodenal contents derived from normal persons and those with pathological affections. The method depends on the estimation of the color developed by bile acids in the presence of furfural and sulphuric acid.

METHOD FOR DETERMINING BILE ACID CONCENTRATION OF DUODENAL CONTENTS

Reagents. The reagents necessary are: Merck's furfural (reagent), which is a chemically pure preparation of furfural; chemically pure sulphuric acid and Schuchardt's preparation of glycocholic acid.

a. Three-tenths (0.3) per cent. furfural solution. This is prepared by dissolving three (3) c.c. of furfural in about 700 c.c. of H_2O in a litre volumetric flask, and making up to the mark with H_2O .

b. Fifty (50) per cent. volume H_2SO_4 . This is prepared by mixing equal volumes of H_2SO_4 and H_2O , and is allowed to cool before using.

c. Glycocholic acid standard. This is prepared by dissolving 50 mgms. of glycocholic acid in about 30 c.c. of N/10 NaOH solution in a 50 c.c. volumetric flask and making up to the mark with the same solution.

Method. Five (5) c.c. of duodenal contents are pipetted into a porcelain casserole of from 50 to 150 c.c. capacity, about 0.1 gm. of bone black (animal charcoal) added and intimately mixed with the duodenal contents by rotation of the casserole. Evaporation to complete dryness is then done on the steam bath or water bath. Fifteen (15) c.c. of H_2O are added to the dry residue, and the latter is scraped from the bottom of the casserole, and all particles triturated by means of the flattened end of a glass rod. The contents of the casserole are next stirred with the glass rod for two (2) minutes and allowed to stand for three (3) minutes more. They are then transferred to a clean, dry test-tube and about 1 gm. of kaolin (Merck) added. The end of the tube is stoppered and the tube is shaken until its contents are intimately mixed. The tube is next allowed to stand about two (2) minutes and the contents filtered through a dry filter paper of good grade.

One (1) c.c. of the clear filtrate is added to the test-tube containing a mixture of 6 c.c. of the 50 per cent. H_2SO_4 and one (1) c.c. of the 0.3 per cent. furfural solution. The whole is thoroughly mixed by rotating the tube. After this mixing the test-tube is placed in a water bath at $67^\circ C$. for thirty (30) minutes. At the end of this period the tube is removed from the water bath and cooled by placing in tap water.

The glycocholic acid standard is prepared by adding one (1) c.c. of the standard solution to the mixture of 6 c.c. of 50 per cent. H_2SO_4 and one (1) c.c. of the 0.3 per cent. furfural solution, and is heated in the water bath along with the unknown. Color comparisons are made with the Duboseq colorimeter.

One (1) c.c. of the filtered aqueous extract of the dried duodenal contents represents one-third (1/3) c.c. of duodenal contents. The index of biliary acid concentration is expressed as the number of milligrams of bile acids per 100 c.c. of duodenal contents.

METHOD FOR THE ESTIMATION OF THE PIGMENT CONCENTRATION OF THE BILIARY PIGMENTS OF DUODENAL CONTENTS

Chemicals. The chemicals required should be chemically pure, and are as follows: Sodium sulphite (Na_2SO_3); glacial acetic acid; both the

monochromate and bichromate of potassium; and, also, kaolin (Squibb's preparation is satisfactory). The apparatus required is as follows: 15 c.c. capacity centrifuge tubes; 10 cm. diameter glass filter funnels; No. OB 12. 5cm. "J. H. Munktells filter paper, extracted by hydrochloric acid"; test-tubes; a centrifuge, and a Hellige or Rowntree-Geraghty colorimeter.

METHOD

Reagents. Stock chromate solution—This is prepared by dissolving 13.33 gms. of potassium bichromate and 40 gms. of potassium monochromate in 800 c.c. of distilled water in a 1000 c.c. volumetric flask, and after solution filling to the mark with distilled water. Two standard chromate solutions are prepared from this stock solution as follows: one is prepared by diluting 200 c.c. of the stock solution to one litre, the other by a similar dilution of 500 c.c. of the stock solution to 1,000 c.c.

TECHNIC OF THE METHOD

Ten (10) c.c. of duodenal contents are pipetted into a centrifuge tube, one (1) gm. of solid sodium sulphite is added and the tube thoroughly shaken. Then 15 drops of glacial acetic acid are shaken with the contents of the tube and the whole filtered through the No. OB filter paper. If the filtrate cannot be made clear by refiltering through the same paper then the following procedure is to be carried out. Mix the contents of the centrifuge tube, after adding the sodium sulphite and acetic acid, with about 0.8 gm. of kaolin and shake vigorously for one minute. Then centrifuge and pour off the supernatant fluid. Next add another 10 c.c. of the duodenal contents to the tube containing the precipitate of kaolin; and mix with one gm. of sodium sulphite and 15 drops of acetic acid as before. Then mix the contents of the tube with the kaolin precipitate by means of a stirring rod and filter through the No. OB filter paper.

The clear yellow duodenal contents obtained by the above procedure is estimated by comparing it with the standard solution of the potassium chromate mixture, in a Hellige colorimeter. The depth of color is expressed in percentage, using the one in five dilution as the ultimate standard for computation of the percentage, and is designated as the index of pigment concentration.

In reading the colorimeter care should be exercised to read colors and not compare simply lights; considerable error may arise in this manner.

DISCUSSION

The authors realize that the color reaction with furfural is not specific for bile acids, and that this opens the proposed method to criticism. However, the method has been so developed as to

rule out many of the substances commonly held to react with furfural. Commercial preparations of lecithin did not give the reaction under the conditions called for by the method described; and neither does egg yolk, dried egg yolk nor its extract with sodium hydrate solution. Furthermore, the authors have been unable to demonstrate phosphorus in amounts of filtered extracts of duodenal contents representing ten times the quantity called for by the method. Phenols were not demonstrable in certain duodenal contents, and only questionably demonstrable in others, in amounts of the filtered extract thirty times the quantity used in the method. Oleic acid and olive oil do not give the color reaction; nor does cream when evaporated to dryness and extracted with water in the manner called for by the method. Although analysis shows copper reducing bodies may be present in duodenal contents, their amount is far too small to represent sufficient carbohydrate to give the color reaction with furfural described. It is, furthermore, questionable if any carbohydrate other than sucrose will give the reaction; and sucrose does not occur in duodenal contents. Also, it has been found that the same amounts of copper reducing bodies are present in duodenal contents regardless of whether bile does or does not enter the intestines; and when bile is excluded from the intestines, the furfural reaction is not obtained. Cholesterol is not demonstrable in the filtered extract of duodenal contents as prepared by the procedure called for by the method. It seems possible that phenols may be present in the bile in the same concentration as in the blood; but phenols are not present in the blood in sufficient concentration to give the furfural reaction described here. Mylius* points out that the various substances giving the color reaction with furfural and sulphuric acid react far less intensively than do bile acids. It will be recalled

that the method deals with one-third (1/3) c.c. of the original duodenal contents, and duodenal contents represent bile considerably diluted with gastric chyme and pancreatic secretion. Thus, this dilution of the bile and that of the duodenal contents as called for by the method tend to exclude substances other than the bile acids which might give the color reaction and which could be present in duodenal contents. This discussion indicates that many of the substances other than bile acids which are known to produce a color with furfural and sulphuric acid either fail to do so under the experimental conditions called for by the method described, or their concentration is probably too small to affect appreciably the accuracy of result. But the status of any method for quantitating bile acids present in duodenal contents remains highly problematical, because the whole subject of the chemistry of bile acids is in a most unsettled state.

The question of the chemistry of bile pigments is in a more unsettled state than even that of the bile acids. This is sufficient reason to show that it is open to question whether the method described really gives the true pigment concentration.

The methods described are proposed as arbitrary procedures which yield data bearing on the functional state of the liver; as will be discussed in subsequent communications. It is for this reason that they are published. While they have been made as simple as possible, they do, none the less, require some experience for their proper execution.

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STUDIES IN LIVER FUNCTION

2. The Concentrations of Cholesterol, Bile Acids and Pigments of Duodenal Contents in Health and in Diseases of the Liver or its Ducts

BY C. W. McCLURE, M. D., AND ELDORA VANCE, B. SC.

[From the Evans Memorial, Boston]

THE present communication outlines the principal results obtained from a study of the functional state of the liver as determined by estimating the indices of cholesterol, bile acid and pigment concentrations of duodenal contents. The contents were obtained both from normal controls and from patients with various diseases, including lesions of the liver or its ducts.

To obtain duodenal contents the subjects swallowed the duodenal tube at least ten hours

after food or liquid had been taken. The tip of the tube was allowed to enter the second portion of the duodenum, and its position there verified by fluoroscopy. The subject then reclined on the right side and 60 c.c. of 33 per cent. magnesium sulphate* solution were introduced into the duodenum through the tube (330 gms. crystallized magnesium sulphate to the litre). The

*As is well known, Lyon proposed the use of magnesium sulphate for duodenal lavage.

proximal end of the tube was closed with a clip for five minutes; after which period, collection of duodenal contents by siphonage was begun. As soon as the duodenal contents became colored with bile, collection was made over the ensuing period of thirty minutes.

The indices of concentration of cholesterol¹, of bile acids and of pigment were determined by methods² already described. The color of the duodenal contents was determined by the naked eye; only yellow, decidedly brownish yellow or green were estimated.

Duodenal contents were obtained from ten normal subjects and the findings are outlined in Table 1, which follows:

TABLE 1

INDICES OF CONCENTRATION OF CHOLESTEROL, OF BILE ACIDS AND OF PIGMENT AND COLOR AND AMOUNTS OF DUODENAL CONTENTS DERIVED FROM NORMAL PERSONS

Subject	Index of cholesterol concentration in mgms.	Index of bile acid concentration in mgms.	Index of pigment concentration in percentage	Color	Amount in c.c.
1	25.0	800	80	brownish yellow	100
2	25.0	246	70	"	120
3	28.6	451	175	"	150
4	25.0	833	125	"	100
5	33.3	370	68	"	40
6	32.2	545	110	"	100
7	25.6	429	97	"	150
8	28.1	697	80	"	100
	48.8	594	140	"	70
9	trace	trace	30	light yellow	120
10	trace	trace	23	"	80

Study of Table 1 shows findings which may be divided into two widely differing groups. The findings in Subjects 1 to 8, inclusive, gave an index of concentration for cholesterol between 25 and 48.8 mgms., for bile acids from 246 to 800 mgm., and for pigment between 68 and 175 per cent. The standard of comparison for the pigment concentration was described in a previous communication.³ All these duodenal contents were decidedly brownish yellow in color. On the other hand, the duodenal contents of two of the Subjects, 9 and 10, were of pale yellow color and contained but little cholesterol, bile acids or pigment.

Duodenal contents were obtained from four patients with cirrhosis of the liver. The cirrhosis was considered alcoholic in three, and the patients were not jaundiced. In two of these patients duodenal ulcer was also present. The cirrhosis in these three was of moderate degree judging from the clinical findings. The fourth patient represented an advanced case of luetic cirrhosis with both jaundice and ascites. This

patient came to autopsy. Duodenal contents were obtained from a patient with a greatly enlarged liver, as the result of Hodgkin's Disease. This patient gave no history of abdominal symptoms usual to cholecystitis. Contents were obtained from a case of cancer of the liver secondary to gastric carcinoma. The patient was not jaundiced and the liver was not enlarged. The diagnosis was confirmed by laparotomy. Duodenal contents were obtained from thirteen subjects in whom the diagnosis of chronic cholecystitis was made. The diagnosis was confirmed by laparotomy in three, by finding gall stone shadows on X-ray plates in three and by recovering gall stones from the stools in one. The diagnosis of the remaining six cases was based on symptomatology typically characteristic of the disease. In addition, duodenal contents were obtained from five patients with well marked vascular hypertension and complaining of gastrointestinal symptoms; and from seven cases of duodenal ulcer. The results obtained from the study of all these patients are outlined in Table 2, which follows on the next page.

Designating as the "conventional normal" the characters found in the majority of control duodenal contents (Table 1), the material from the four patients with hepatic cirrhosis was of nearly normal color in one (Case 1), the bile acid concentration was normal in another (Case 4), and the pigment concentration but slightly reduced in another (Case 3). These findings indicate that the liver had been stimulated in these patients. But the low cholesterol concentration in two of the patients and the low pigment concentration in one showed that these duodenal contents all differed from the conventional standard. The only evidence of the presence of bile in the duodenal contents of the fourth patient (Case 2) was the yellow color. In view of the finding that magnesium sulphate does not always stimulate a more concentrated flow of bile in the normal person, it is difficult to decide whether the lack of stimulation in this fourth patient was abnormal. However, the findings in this fourth patient are consistent with the findings in the other three.

The duodenal contents of the patients with vascular hypertension and complaining of dyspepsia show one or more of the biliary constituents to be nearly normal, according to the convention adopted, while the others are much decreased. These findings are comparable to those obtained in the duodenal contents of the cases with hepatic cirrhosis; as are, also, the findings in the subjects with Hodgkin's Disease and secondary cancer of the liver.

Twelve of the thirteen duodenal contents from patients with chronic cholecystitis were pale yellow in color. The indices of concentration of cholesterol were below the conventional normal in all twelve and of bile acids in eleven. On the

same basis, the pigment concentration was less than normal in one. In the duodenal contents from one of the patients (with the diagnosis confirmed by laparotomy) the cholesterol concentration was much above the normal maximum figures given in Table 1 and the color was mahogany brown. Thus, the duodenal contents of all patients with chronic cholecystitis showed some characters different from the findings in

bile constituents which were within or above the figures obtained with those of the majority of normal persons.

Study of the findings in the duodenal contents in relation to weekly or bi-weekly lavages of the duodenum with 60 c.c. of 33 per cent. magnesium sulphate solution was made on six patients with chronic cholecystitis and on two patients whose gall bladders had been removed

TABLE 2

INDICES OF CONCENTRATION OF CHOLESTEROL, OF BILE ACIDS AND OF PIGMENT AND COLOR AND AMOUNTS OF DUODENAL CONTENTS DERIVED FROM PATIENTS WITH LESIONS INVOLVING THE PARENCHYMA OF THE LIVER OR ITS CIRCULATION AND PATIENTS WITH CHRONIC CHOLECYSTITIS OR PEPTIC ULCER OF DUODENUM

Subject	Index of cholesterol concentration in mgms.	Index of bile acid concentration in mgms.	Index of pigment concentration in percentage	Color	Amount in c.c.	Diagnosis
1	trace	123	32	light brownish yellow	—	Cirrhosis of liver
2	trace	trace	trace	light yellow	70	
3	12.7	179	75	" "	100	
4	12.8	292	58	" "	100	
5	24.0	trace	40	light yellow	100	Vascular hypertension
6	17.8	172	195	brownish yellow	100	
7	22.7	164	60	light yellow	100	
8	15.2	156	45	" "	100	
9	26.5	357	60	" "	60	
10	6.9	trace	10	" "	80	Hodgkin's Disease
11	6.0	trace	10	" "	80	Cancer of liver
12	11.1	192	30	" "	80	Chronic cholecystitis
13	14.0	trace	trace	" "	90	
14	13.1	181	86	" "	70	
15	13.1	trace	44	" "	100	
16	17.8	163	220	" "	70	
17	16.4	300	38	" "	100	
18	16.0	175	80	" "	100	
19	12.5	68	12	" "	60	
20	12.3	144	25	" "	40	
21	trace	trace	trace	" "	50	
22	trace	156	32	" "	100	
23	13.0	186	26	" "	55	
24	78.4	726	160	mahogany brown	100	
25	30.8	706	200	brownish yellow	80	Duodenal ulcer
26	33.5	476	176	" "	100	
27	48.5	355	120	" "	100	
28	55.5	273	250	" "	70	
29	39.2	484	310	" "	100	
30	39.6	360	73	" "	70	
31	64.5	700	205	" "	150	

the majority of the control subjects; i. e., the conventional normal.

The above discussion shows that all patients studied, in whom there was a parenchymal or vascular lesion of the liver, or in whom there was disease of the ductal system, gave duodenal contents differing from those obtained from the great majority of the control subjects, who were considered to be normal.

The duodenal contents from seven patients with duodenal ulcer all showed concentrations of

because of that condition. The findings in representative cases of chronic cholecystitis are outlined in Table 3, which follows on the next page.

In Case 32, of chronic cholecystitis in Table 3, it will be noted that the findings in the duodenal contents showed great variations. Finally, however, the cholesterol and bile acid concentrations increased to figures comparable to those obtained with the controls; but the pigment concentration did not reach these figures and the color was the conventional normal brownish yellow only occa-

sionally. In general, the increase in concentration of the biliary constituents in the duodenal contents was accompanied by relief from symptoms. In two of the cases (Cases 33 and 34 of Table 3) the duodenal contents eventually developed indices for the biliary constituents which were comparable to those obtained in the majority of normal persons, and the color became brownish yellow; the symptoms disap-

TABLE 3

INDICES OF CONCENTRATION OF CHOLESTEROL, OF BILE ACIDS AND OF PIGMENT AND THE COLOR AND AMOUNTS OF DUODENAL CONTENTS DERIVED FROM PATIENTS WITH CHRONIC CHOLECYSTITIS DURING REPEATED LAVAGES WITH MAGNESIUM SULPHATE SOLUTION

Subject	Index of cholesterol concentration in mgms.	Index of bile acid concentration in mgms.	Index of pigment concentration in percentage	Color
32	13.0	186	26	light yellow
	—	309	24	" "
	14.1	90	20	" "
	9.5	141	30	yellow
	14.0	226	50	light yellow
	40.0	645	—	brownish yellow
	13.3	124	22	moderate yellow
	19.0	330	5	light yellow
	18.5	255	28	brownish yellow
	21.0	359	45	yellow
	14.7	trace	25	"
	23.5	540	26	yellow with tinge of brown
	22.2	405	22	" " " " "
	30.0	400	30	" " " " "
	39.9	366	—	" " " " "
33	12.3	144	25	light brownish yellow
	14.0	312	67	brownish yellow
	—	—	—	light yellow
	—	—	—	brownish yellow
	16.4	227	90	light brownish yellow
	26.3	285	100	brownish yellow
	35.6	303	108	" "
34	39.2	260	120	" "
	16.4	—	80	light yellow
	trace	156	32	" "
	—	—	—	light brownish yellow
	15.7	392	90	brownish yellow
	33.0	—	—	" "
	20.0	339	45	" "

peared coincidentally with these changes in the duodenal contents.

The duodenal contents of the patients whose gall bladders had been removed remained abnormal after numerous lavages; using the conventional standards for comparison. However, certain contents showed individual concentrations of bile acids, cholesterol or bile pigment equal to those obtained with normal controls. These patients became entirely free from symptoms.

DISCUSSION

The immediate origin of the bile of duodenal contents is of much importance in the interpretation of the findings presented in this investigation.

The two obvious sources of duodenal bile are the gall bladder and liver, itself directly. The following data throw light on the immediate origin of duodenal bile:—In a certain stage of convalescence from catarrhal (infectious) jaundice, and during the same period of collection, duodenal contents may suddenly change from golden yellow to deep grass green color and vice versa several times. Deep sage green bile of duodenal contents was obtained from a patient with a marked degree of hemolytic jaundice, due to chronic hemolytic jaundice. There is no known basis for explaining these color variations as the result of changing conditions in either the gall bladder or duodenum; while it is well established that the liver can secrete biles of different colors. Furthermore, deep grass green bile has been obtained repeatedly from the duodenum of a patient with hepatic cirrhosis and whose gall bladder had been removed. On the other hand, it may be maintained that the color variations noted were the result of exposing bile to the oxygen of the air. If this were true, then the bile pigment present reacted entirely differently from that of normal persons. Color changes in the duodenal contents of normal subjects occurred only after a number of hours, if at all, when the specimens were not exposed to bright light or to bacterial action. Bile of entirely normal character, as determined by the methods employed, has been repeatedly obtained from the duodenum of a patient whose gall bladder was completely excised. The bile of subjects without gall bladders, with the exception noted above, remained yellow in color after lavages with magnesium sulphate. The usual explanation for this yellow color is that it is the result of dilution of the bile; which in turn is the result of the absence of the normal concentrating action of the gall bladder. But the persisting yellow color may have remained as the result of functional biliary derangement caused by the original disease. Furthermore, concentrations of cholesterol, bile acids and of pigment in certain duodenal specimens from persons without the gall bladder equalled concentrations of normal duodenal contents. This finding is not consistent with dilution of the bile; as has been fully discussed in a former communication³. It has, also, been found that the character of the bile of duodenal contents could be completely changed by repeated lavages of the duodenum of patients with chronic cholecystitis. As was discussed formerly³ it does not seem probable that the lavages opened an occluded cystic duct. This is well illustrated by the findings of Case 33 outlined in Table 3. In the same table it will be noted that in Case 32 the concentrations of cholesterol and bile acids increased to figures equal to those of the conventional normal standards, while the pigment concentration remained low and the color yellow. Furthermore, in Case

34 the pigment concentration was as high in the presence of a light yellow color as when the conventional normal brownish yellow color was present. The same finding has been obtained in other cases. These findings rule out dilution of duodenal contents as the cause of the yellow color in these cases.

All the above findings show that the bile of duodenal contents has either come immediately from the liver or that the gall bladder has functions hitherto not ascribed to it. In the light of present knowledge, therefore, the findings discussed indicate that the bile present in duodenal contents has come immediately, in large part at least, from the liver and not from the gall bladder. If this be granted, then the bile of duodenal contents offers a direct means of examining secretions from the liver. It is of interest to note that Crohn⁴ and Jacobson⁵ and Jones⁶ have arrived at conclusions which support this contention; to whose articles the reader is referred for resumes of the literature on this subject.

As was before stated, the results of the study of duodenal contents from the ten normal subjects show that in 80 per cent. of these the color was definitely brownish yellow and the index of cholesterol concentration varied from 25 to 48.8 mgms., of bile acids from 246 to 800 mgms., and of pigment between 68 and 175 per cent. The greatly reduced concentrations of these substances and the pale yellow color of the duodenal contents of the two remaining apparently normal subjects are interpreted as showing that magnesium sulphate does not always stimulate a flow of bile in normal persons. This finding demands caution in interpreting results obtained from the study of duodenal contents derived from abnormal persons. But the findings for cholesterol concentration and the brownish yellow color of the duodenal contents in this group of normal subjects are comparable to those reported in a previous investigation. In this investigation it was found that 85 per cent. of duodenal contents from subjects without biliary involvement showed an index of cholesterol concentration between 23 and 50 mgms., and 90 per cent. were brownish yellow in color; while the remaining percentages were pale yellow in color and of low cholesterol concentration. This agreement in the two investigations makes it seem safe to use the findings in 80 per cent. of the normal group reported here as "conventional normal standards" with which to compare the findings in groups of patients.

The findings in the twenty-three patients with some type of liver involvement or circulatory disturbance in the liver all showed duodenal contents in which the biliary fraction differed from the conventional normal standards. Since it is highly probable that the bile came immediately from the liver, these findings may be most plausibly explained on the basis that

the liver did not react normally to the stimulation of magnesium sulphate solution placed in the duodenum. Therefore, the findings indicate that the methods used can demonstrate disturbances in the functional state of the liver; and suggest that functional disturbances of the liver often accompany hepatic cirrhosis, abnormalities in the circulation of the liver and chronic cholecystitis.

The return of the biliary fraction of duodenal contents to more nearly normal character, during the giving of repeated lavages with magnesium sulphate solution, would seem to indicate that magnesium sulphate exerted a favorable influence on the functional condition of the liver. This confirms the inference drawn from previous work³, which was that magnesium sulphate exerted such an influence. It suggests, also, that the favorable progress of patients during lavages may have been due to improvement in hepatic function.

CONCLUSIONS

In interpreting the experimental data presented, two main sources of error must be constantly considered. First, the work demonstrates that magnesium sulphate does not stimulate uniformly a rather small percentage of normal livers. This source of error has been discussed above. Secondly, the liver possesses manifold and complex functions; and, in addition, the interpretation of the experimental results is complicated by the role possibly played by the gall bladder and secretions of the pancreas or stomach in modifying the bile of duodenal contents. Nevertheless, the following conclusions seem justified:

1. The findings indicate that the bile of duodenal contents, obtained after lavage with magnesium sulphate solution, undergoes very little modification as the result of action on the part of the gall bladder.
2. The findings indicate that magnesium sulphate, introduced into the duodenum, may affect the functional state of the liver.
3. Liver function, as measured by the procedures employed, was found to be deranged in lesions involving either the parenchyma of the liver or its blood supply and in chronic cholecystitis.

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CORRELATION OF OFFICIAL AND UN-OFFICIAL HEALTH AGENCIES IN THE PUBLIC HEALTH PROGRAM*

BY DR. CHARLES F. WILINSKY, DIRECTOR, HEALTH UNITS, CITY OF BOSTON

THE correlation of official and unofficial health agencies and of their respective places in the public health program has been much discussed in the past. It was the subject of an interesting symposium at the national meeting of the American Public Health Association in San Francisco in 1920, with Dr. Haven Emerson ably presenting the viewpoint of the public health agency and Dr. Charles Hatfield that of the non-official group. Many prominent leaders in public health participated in the discussion.

Many opportunities have presented themselves for a demonstration of the theories advanced. It is well agreed that leadership should rest with the public health agency. It is only fair that the public health officer, cloaked with authority and held responsible for the health of his community, must lead. In the light of the subsequent events, wherever that leadership has rested with the official health group who have had the proper backing of the non-official agencies with proper correlation existing, much progress has been made.

Before we discuss the correlation of the two distinct groups, let us try to justify the existence and the function of the unofficial health agency. This, I believe, is necessary because of a question in the minds of some very efficient health officers about the relative value and position of the private agency in public health.

Theoretically it might be said that the well functioning, up-to-the-minute health department would be cognizant of all of the essential services necessary and would supply the same, leaving nothing for the unofficial group to do. Practically, we are far away from that ideal day, and private agencies will be needed for a long time, if not always.

The well accepted community health program today, in addition to diagnosis and control of disease, an agreed function of the public health agency, includes pre-natal instruction, baby welfare and child health education, social and mental hygiene, periodic health examination, anti-tuberculosis work, venereal disease control, posture and nutrition work, etc. Do our health departments of even the best reputation and standing, carry so complete a program? The answer is simple, and the reason is because the need of so thorough and complete a program has not as yet been demonstrated satisfactorily to the tax payer, even though the best medical minds agree that these services are essential for community betterment.

The justification for the existence of a non-official health agency in a community is the need

of the particular service it furnishes in the neighborhood in which it functions. For this commendable endeavor it deserves credit, but only so long as it combines with actual service rendered, an earnest effort to wage a campaign of education, exerting pressure leading in the direction of the taking over of its work by the municipality. The well meaning agency, while carrying on work worth while will be planning to educate the public to support the official health bodies in the establishment of the very services which the non-official agency is then carrying on, and when it has succeeded in its purpose its work in that particular field is over, and the danger and misunderstanding lies in its unwillingness to relinquish the field to the properly constituted official group who are to function. Too much stress cannot be laid upon the fixed duty of the private agency to throw its support to the official public health group in the development of such a complete and thorough program which may mean the effacement of the private agency or at least of the particular phase of the work in which it may then be interested and engaged. If the work which it has been doing is worth while it should strongly support the official health agency in the plan for the taking over of the same.

While this is going on correlation must exist, duplication must be avoided, friction must be eliminated, false beliefs must be dispelled, and in this, both groups must play a part.

The objective of both the official and non-official agencies, if they are well meaning and conscientious, is the same, namely, the establishment of a complete health program for community good. That being so it is the duty of the non-official agency to bring pressure to bear in the direction of creating favorable public opinion for the establishment municipally of the services deemed necessary and worth while; in the meantime, filling the gaps that exist.

The value of the non-official agency lies in its ability to carry on a service deemed essential in the public health program because of the foresight of generous men and women who are supporting something worth while which, for a time, the municipality fails to recognize as essential, or, through budget limitations, is unable to carry on. This period may be regarded as an experiment or demonstration of a justifiable piece of work.

In the field of research and health education the unofficial health agency finds fertile soil and is unhampered by the many limitations of the official health officer whose budget permits him for a while to tread only the well beaten paths.

*Read at the 53rd annual convention of the American Public Health Association in Detroit, October 23, 1924.

I must acknowledge my lack of contribution of any new ideas or developments but rather to emphasize the fact that the deductions made in 1920 have been proven in many, many instances, sound and worth while. Wherever intelligent correlation has been carried on much progress has been made. Demonstrations and experiments carried on by private agencies and proven worth while have been taken over by the public health group, leaving the non-official agencies new fields to conquer and new theories to solve. Is not this an interesting and worth while situation? Does it not prove the value of the private or non-official health agency in its chosen field and sphere? Does it not justify the commendation of the intelligent health officer who ought to welcome such an ally? On the other hand, should not the well meaning, conscientious, private health agency be grateful to the constituted public health authorities who relieve them of their burdens? Should not non-official health agencies always strive to work in close accord and harmonious relationship with plans, programs, and feelings of the public health group in mind, supplementing always, never duplicating, never striving to compete with an established service functioning under municipal direction? The private health agency should always recognize the principle that leadership should rest with the constituted public health agency.

So far we have been dealing with generalities, but will you pardon my specific allusion to a concrete demonstration of the theories advanced.

It has been my pleasure and privilege as Director of the Blossom Street Health Unit, maintained by the Boston Health Department, to work in close correlation and to assist in the development of a coordinated program which calls for combined efforts of the official and non-official group. It has again been my special privilege and good fortune as Executive Secretary of the Boston Health League to assist in the development of a correlated piece of work with approximately thirty distinct official and non-official health agencies interested in the development. It has taught me as a representative of the official group, as it must have taught the representatives of the private agencies, that each group, for a long time, has had the wrong perspective of the other. From the contact has developed a better understanding, a more correct appreciation of each other's ability and willingness, as well as limitations, and has resulted in a better health job. It has resulted in the city taking over many of the services and burdens of the private agencies, in this way accomplishing the ideal objective.

As specific evidence resulting from correlation may be mentioned a recent development in Boston. For a long time infant welfare and child hygiene has been carried on both by the

Boston Health Department and the Baby Hygiene Association, which recently consolidated with the Instructive District Nursing Association, forming a rechristened agency known as the Community Health Association. Very excellent work had been done in infant and child welfare by the non-official group and yet until the friendly contact of the two agencies there was much duplication and waste of effort. From the correlation developed an avoidance of duplication and resulted in a program which eliminated overlapping. Not content with that, both the official and non-official group worked for the absorption of this service by the proper agency to carry on this work, namely, the City of Boston Health Department. This result came about only from the existing correlation and harmonious preceding working arrangement of about two years duration. From this personal contact and observation developed the belief and admission that not only should the city do this work but that its personnel and plans proposed would carry on this work with safety.

The development of a dental service, municipally supported, functioned by the Forsyth Dental Infirmary personnel, is another evolution made possible by correlation, and the development of a positive theory that the city ought to be interested in the dental care of pre-school age and other children of tender years.

The employment of nutrition workers by the city was a deduction made after an appreciation of the value of proper nutrition in child health, and has resulted in the taking over of this work, formerly carried on by a private agency.

Health education taught by private agencies is now being carried on by the city whose citizens and officials have begun to appreciate its importance, value and necessity. Other phases might be mentioned and enumerated.

Both groups must correlate and work together. This will make it easier for each one and there will always be something to do for both. The private agency is often needed to supplement, demonstrate, to experiment, to educate and to cooperate with the official group in every possible shape and manner. The official group is needed not only for the purpose of diagnosis and control of disease with its many phases and ramifications, but to assume leadership and responsibility as the legally constituted authority, as well as to take over the financial burdens needed to carry on the proven theories of the private group.

Much community good can be gained by the development of a permanent organization, composed of official and non-official groups of health and welfare workers. From such organization will not only come personal contact but a direct understanding of the fixed duties and limitations of each group, and such understanding will not only do away with overlapping, but will re-

sult in the proper placing of services, as well as the rights and prerogatives of each. It is as reasonable and fair to believe that there is as much intelligence in one group as in the other. It is reasonable to presume that both groups are expected to coöperate and play the game fairly. Team work of that type will develop the rather

unusual situation of both teams winning. The combined efforts of both groups are needed to fight its all powerful enemies, disease and ignorance, and in health work as in everything else the old saying runs true, "united we stand, divided we fall." The future offers much promise.

A STUDY OF THE VALUE OF OSTEOPATHIC ADJUSTMENT OF THE FOURTH AND FIFTH THORACIC VERTEBRAE IN A SERIES OF TWENTY CASES OF ASTHMATIC BRONCHITIS*

BY WM. P. MURPHY, M.D., AND PERRIN T. WILSON, D.O.

In a previous paper, "A Study of the Presence of an Osteopathic Lesion in Disease of Recognized Pathology," the authors summarized the work done on one hundred and eighty-seven cases in the wards of the Peter Bent Brigham Hospital in an effort to demonstrate a more or less constant structural maladjustment in a given type of disease which might be interpreted as an osteopathic "lesion."

The principal conclusion arrived at from this study was that a definite structural maladjustment in a given disease could be demonstrated in too small a percentage of cases to interpret it as a "lesion," the cause of a given perverted function, or disease.

Our second problem as stated in the above mentioned paper was to determine the value of treatment, i. e. adjustment of the "lesion" if such were found to exist. Inasmuch as our study did not show the presence of a "lesion" our second problem could not be attacked from the information so gained.

We decided, therefore, to undertake treatment on a series of cases which should conform as nearly as possible to the following conditions:

1. Having a "lesion," the location of which was more or less generally agreed upon by Osteopaths.
2. In which a fairly large number of cases could be followed carefully over a long period of time in the Out-door Department.
3. Having symptoms of such type and severity that relief of the symptoms could be readily demonstrated without having to keep them in the wards of the hospital for accurate observation of diet or clinical pathology.

Cases of asthmatic bronchitis seemed to conform most nearly to these conditions, so through the courtesy of Dr. I. C. Walker a series of cases was selected from his Out-door "Asthma" clinic.

We were, however, unable to find any very

definite agreement among Osteopaths as to the supposed location and type of the "lesion" and the adjustment which should be undertaken in cases of asthmatic bronchitis. The general opinion favored a "lesion" in the region of the fourth and fifth dorsal vertebrae. One of our first cases (Case No. 1) was a very thin individual with a vertebral column easily palpated. Definite tenderness was found over the right transverse process of the fifth thoracic vertebra only. Two other cases (Cases 6 and 7) showed tenderness over this same region; but also with less marked tenderness at points above and below and on the left. Using this "lesion" as a basis a series of these patients were treated following out a perfectly definite scheme of adjustment in each case.†

Beginning in November, 1922, and the early part of 1923 six cases of asthmatic bronchitis were selected from the Out-door Department Clinic of the Peter Bent Brigham Hospital which had failed to respond favorably to vaccine therapy. Spinal adjustment was carried on with vaccine treatment once each week during 1923 more or less regularly.

A questionnaire sent out at this time brought answers which indicated improvement in four of the cases. An analysis of the weekly clinic record, however, failed to show such definite improvement so in February of 1924, fourteen additional cases were started all of which had had previous vaccine treatment and had showed little or no improvement as a result of this.

In all twenty cases have been treated, all of which were having almost continuous attacks of

*The "lesion" was interpreted as follows: The position of the inferior facet of the fourth vertebra upon the superior facet of the fifth vertebra was one of flexion and side bending rotation to the left.

†No attempt was made to give the patient a general treatment. Adjustment of the region described above was undertaken because this area has been supposed to control the blood and nerve supply to the bronchial tubes. The method of procedure in adjusting these cases consisted in having the patient face downward on a table, then up on his elbow with the humerus at an angle of approximately 90 degrees with the table. The elbows were brought close together so as to throw the scapulae apart. Pressure was then exerted on the right transverse process of the fifth dorsal vertebra, pushing it through to the limit of its motion. Following this, pressure was applied to the left transverse process of the fourth dorsal vertebra until motion was obtained. The fourth and fifth ribs were then gently pressed at the angles. Each adjustment took not over five minutes.

*From the Medical Clinic of the Peter Bent Brigham Hospital. This work was undertaken as part of an investigation that has been conducted on the subject of Osteopathy and Chiropractic by a committee of the Council of the Massachusetts Medical Society. The committee consisted of Channing Frothingham, M.D., chairman, George S. C. Badger, M.D., and James W. Sever, M.D.

asthma not relieved by vaccine therapy and only temporarily relieved by adrenalin. The number of osteopathic adjustments varied from ten to seventy. The accompanying table will show the result of adjustment up to September 1, 1924. An effort has been made to estimate in terms of per cent the probable improvement in each case as shown by the weekly clinic record and the patient's statement of his condition.

TABLE

Case	Age	No. of treatments	Per cent improvement
H. H.	14	70	90-100
R. S.	14	19	90-100
A. K.	50	11	90-100
R. B.	25	28	90-100
H. E.	30	14	90-100
F. E.	17	26	90-100
A. P.	36	50	75
A. J.	14	10	75
D. F.	55	20	50
A. B.	35	16	50
M. D.	44	12	25
A. M.	31	24	25
J. M.	12	10	25
E. M.	32	22	5
J. M.	30	17	5
K. S.	24	10	0
L. H.	12	14	0
R. B.	38	16	0
R. O.	36	18	0
S. K.	35	22	0

Table showing the age, number of adjustments and estimated improvement in twenty cases of Asthmatic Bronchitis who received Osteopathic adjustments.

The ages varied from 12 to 55 yrs., nine, or nearly one-half, being between 30 and 40. Of the 20 cases, 6 were very much improved, four others showed noticeable improvement, three showed a definite but slight improvement, while 7 showed practically no change.

A short discussion of a few of the typical results will perhaps be of interest and help to explain the type of improvement effected.

Case No. 1 (H. H.) A boy of fourteen for two years previous to 1924 was unable to run or swim. During the summer of 1924 he did both with no difficulty. From the Out-door Department record it was estimated that he had thirty-three bad weeks during the year previous to adjustment, twenty-two during the first year of adjustment and during the second year of adjustment one bad week during a summer hot spell and a two day attack when plastering was being done in his home.

Case No. 2 (R. S.) Also a lad of 14 yrs., estimates his improvement in ability to run and play normally, something which he had been unable to do previously. Improvement is not so

striking or complete as in Case No. 1, but his attacks are less frequent, occur only at night and were entirely absent over a period of eight weeks.

Case No. 3 (A. K.) A Jewish house-wife was unable to do her housework and was in bed a great deal of the time. For 2-3 months now she has had no attacks and has been doing all of her work.

Case No. 8 (A. J.) Another 14 year old boy also estimates his improvement in ability to run and play normally, which he could not do before. He still has attacks of asthma but less severe and relieved for one or two days after an adjustment.

Case No. 9 (D. F.) Had received vaccine treatment over a period of eight months before adjustment was begun three months ago. For past month has been able to lie flat in bed at night whereas previous to this it was necessary for her to sit up at night. She still has occasional day attacks after exertion.

Case No. 10 (A. B.) The number of attacks have not decreased but chest is less "tight" than before and is cleared easily by coughing. There is also some immediate relief after adjustment. One year ago at this time it was necessary for him to lose on the average of one day each week from his work. During the past two months he has lost only one day.

Case No. 11 (M. D.) States that there has been some improvement in ability to breathe between attacks. The clinic records show no diminution of severity or number of attacks.

Case No. 12 (A. M.) For about 4 years has had very severe attacks. For three weeks has been better than at anytime during this period and has noticed immediate relief after adjustment. It is difficult to state the cause of the improvement as the following operations have been performed during the four year period:—Two double ethmoids, mastoid, double antrum, deviated sputum, 2nd tonsillectomy and "dozens" of polypi have been removed from the nose.

Case No. 13 (J. M.) Questionable improvement in that chest is less "tight."

Cases No. 14 and 15 (E. M. & J. M.) Both have received immediate but not lasting relief during an acute attack. The relief has at times been comparable to that produced by a dose of adrenalin.

The last five cases were unable to get either temporary or permanent relief from the treatments.

One additional case not included in this series came to the vaccine clinic during a severe attack. A dose of adrenalin gave little or no relief but the attack stopped almost immediately after an adjustment.

It is difficult to interpret the amount of improvement resulting from the adjustment described because of lack of laboratory or clinical methods whereby the changes may be measured

and because of the variability of asthma. At the present time it is not possible to speak of any of the cases as "cured" because sufficient time has not elapsed to determine this fact. We can perhaps speak of these cases as "arrested" in somewhat the same sense as it is used in tuberculosis.

CONCLUSIONS

In a series of twenty cases of asthmatic bronchitis all of which had received careful vaccine treatment previous to and during the period of adjustment, fifteen experienced at least a certain degree of temporary relief. Ten of the twenty were at least 50% better, either because of fewer attacks or less severe symptoms during an attack. In four of these the attacks were practically stopped while in two others the attacks do not interfere with their daily routine. In five cases there was no relief and in two others only very transient relief during an attack.

MISCELLANY

Answers to a Civil Service Examination for Social Workers

"A *moron* is a person who has fallen to the lowest ideals possible."

"*Moron*—A wise fool."

"*Moron*—Species of immortality difficult to define with words or eradicate when found."

"*Moron*—An infant whose parents leave it and do not acknowledge parentship."

"*Kleptomaniac*—One who steals while walking in his sleep."

"*Kleptomaniac*—A child of unsound mind."

"*Juvenile Delinquent*—A child behind normal children in a mental way, or who goes wrong usually; immature and burdened with a hopeless inferiority."

"*Mental Hygiene*—A child afflicted with mental hygiene is one whose brain is not normal."

"*Mental Hygiene*—Dirty and unkempt."

"*Mental Hygiene*—A child suffering with mental hygiene should be placed in a proper school to cure same as much as possible."

"What action would you take in this case? Theft of growing fruit."

Ans.—"Perhaps the child is a *Kleptomaniac*. Remove her from the fruit, or perhaps the parents also steal fruit—discipline the parents."

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

ASSOCIATE SOCIAL ECONOMIST
ASSISTANT SOCIAL ECONOMIST

Receipt of applications for Associate Social Economist and Assistant Social Economist will close March 10. The examinations are to fill vacancies in the Children's Bureau of the Department of Labor, at entrance salaries of \$3000 and \$2400 a year, respec-

tively. Advancement in pay may be made without change in assignment up to \$3600 a year for Associate Social Economist and up to \$3000 a year for Assistant Social Economist.

The duties of Associate Social Economist will include the planning, conducting and supervising, largely on his own responsibility, of library research or field investigations, in one of the following lines of work: Industrial investigation, child labor law administration, and employment supervision of minors; care and protection of dependent, delinquent, physically handicapped, and mentally defective children; and recreation for children; also he will be required to write technical reports based on such research or investigation.

The duties of Assistant Social Economist will be to conduct, under general direction, activities similar to those outlined above for Associate Social Economist.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of United States Civil Service Examiners at the postoffice or custom house in any city.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C.,	March 2, 1925
At Chicago, Ill.	March 2, 1925
At New Orleans, La.	March 2, 1925
At San Francisco, Cal.	March 2, 1925

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass, satisfactorily, oral, written and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon-General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, Surgeon-General.

Evolution

"A neighbor's child was sick—whose turn tonight?

The case was at the crisis; mother went. She had an art in sickness—moved quietly, Knew symptoms well, and herbs, roots, essences. She learned them from her mother—she, from hers.

"Now the times change, the ancient lore gives way,

Or meets the keen, relentless test of science. As blacksmith grew to engineer, and barber became surgeon,

The kindly neighbor now is nurse; and studied skill

Adds to the art of friendly ministrations."

—Hospital Progress.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11101

MEDICAL DEPARTMENT

A colored housewife of sixty-one entered December 17 complaining of nausea and malaise of three days' duration and a chill the night before admission. The history was given by her daughter, who seemed intelligent and a good observer.

F. H. The patient's father died of Bright's disease. Her family was rheumatic. Her husband died seven years before admission of "spinal meningitis" (tuberculous?).

P. H. The daughter had never heard any serious illness mentioned. The patient had been very healthy all her life. She passed the menopause at fifty-four without symptomatology. For three years she had been "rheumatic"—had had pains in her joints on damp days. Two years ago she complained of an indefinite back pain which she referred to her kidneys. There was an indefinite story of nycturia. In September, three months before admission, she complained of painful swelling of the feet and ankles. The skin became rough and hard in patches and turned blacker. The daughter thought the swelling was not like that of dropsy, with which she was familiar.

P. I. Three days before admission the patient complained of malaise and said everything tasted bitter. She ate very little, and had several attacks of vomiting preceded by nausea and not definitely related to meals. She vomited nearly everything eaten and vomited also when her stomach contained no food. After two days of this she had a sudden chill the evening before admission and felt very faint. A physician said her temperature was 104°. She felt very hot all night, complained of constant severe frontal headache, and rested little or none, vomiting several times during the night. She breathed rather rapidly. In the morning the doctor found her temperature still elevated.

P. E. An obese woman lying quietly, apparently under the influence of drugs. A bony bulge in the upper sternum (rickets). Lungs. Moist râles at both bases. A questionable sug-

gestion of bronchial breathing at the left base. Heart. Apex impulse not recorded. Borders not made out. Supracardiac dullness slightly increased. Premature beats, about one in four. P₂ accentuated. Mitral first sound greater than mitral second. Systolic murmur heard over the precordia, best heard along the left sternal margin, third interspace. Radials palpable but apparently not hardened. B. P. 160/70. Abdomen normal. Pelvic examination not done. Extremities. Slight pitting edema over the tibiae. Pupils pinpoint, equal, regular, no reactions. Reflexes normal. T. 103.7°-105.9°, rectal. P. 88-141. R. 24-40. Urine not recorded. Blood. Hgb. 65%-90%, leucocytes 15,850-13,500, polynuclears 65.3%-72%, reds 4,448,000-5,410,000, rather marked achromia at one of two examinations, platelets apparently diminished at one. Blood culture negative. X-ray. Left chest less radiant than right, the density increasing toward the base, where it obliterated the outline of the diaphragm. Heart shadow much increased in size and indefinite in outline. Marked increase also in supracardiac dullness.

Orders. December 17. Precautions. Fluids ad libitum. Castor oil $\frac{3}{4}$ 1½ (vomited). Codein gr. ss. every three hours by mouth. Digitalis gr. iii at one p. m.; repeat at four, eight and twelve p. m. December 18. Digitalis gr. iii 4 i.d. Codein gr. ss by mouth. Morphia gr. 1/6 s.c. p.r.n. for pain every three hours. Castor oil $\frac{3}{4}$ ii daily in the morning. Caffein gr. x s.c. p.r.n. every half hour for respiratory failure. December 19. Morphia gr. 1/6 s.c. Digitalis gr. iss daily. December 20. Morphia gr. 1/6 s.c. every three hours p.r.n. Digitalis gr. iss 4 i.d.

The day of admission Dr. White found bronchial breathing and fine râles at the left base. The next day the right upper lobe showed distinct dullness, increased voice sounds and tactile fremitus and occasional râles. The breathing was bronchovesicular. That night the patient was weaker, the respirations more labored and the heart more irregular. She was incontinent of urine and feces and slightly irrational. December 20 the chest signs were still indefinite. There were some râles and dullness at the left base. She was losing ground. There was marked pulse deficit, 132/96. The digitalis was increased to six grains daily. The morning of December 21 she died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

The history makes us think of pneumonia, grippe, or some of the other acute sudden infections. Up to the physical examination we have no other evidence.

NOTES ON THE PHYSICAL EXAMINATION

When we have an infection like this we look rather harder for the possibilities of pneumonia, and we sometimes imagine things and sometimes get them right.

We should not expect to find the borders of cardiac dullness in a woman of this age. The first sound should be greater than the second. There is nothing in that. This is the least significant type of murmur and does not really tell us anything.

We have heard that morphia was given. That presumably explains the condition of the pupils.

The temperature was elevated during the four days when she was here. On the chart we see a continuous fever, most of the time 104° or more by rectum, a pulse rarely below 100, a respiration which started high and then went down in a queer way, as if she began to get better and then relapsed.

One of these hemoglobin measurements is wrong, in my opinion. We do not have a change of that sort in four days unless we have a big hemorrhage, and there is no reason to believe she had. There was achromia at one examination and apparently not at the other, all within four days. Somebody is wrong.

I think that the X-ray people at the end were suspecting a pleural effusion rather than consolidation, which that seems to describe.

The patient evidently breathed and moved while the X-ray was being taken, so that everything is vague. We see the outline of the diaphragm on the right side and no definite evidence of fluid on that side. On the left side we cannot make out the diaphragm at all and things look cloudy, especially in the axillary line. That is where fluid ordinarily shows itself, so that as far as this plate goes we have no definite evidence of pneumonia but rather of effusion. Nevertheless I am perfectly sure that effusion could not give this clinical picture, could not give fever and these symptoms, and that there has to be something more than effusion. I think that something more is pneumonia, although the plate does not show it. Dr. White's findings are much more definite than anything that we have against them in the X-ray.

DIFFERENTIAL DIAGNOSIS

I cannot make any better diagnosis than that which I suspected from the beginning,—pneumonia. I have no doubt that that has hit her harder and killed her quicker than it otherwise would have done because of the previous existence of a hypertrophied and dilated heart of the hypertensive type, presumably with arteriosclerosis. But I do not think she died of heart trouble. She would have lived for years if she had not had this infection coming on top of a weakened heart.

With pneumonia, especially of late years, we have become accustomed to recognize that empyema is often present without our knowing

it. There is no way of excluding it in a case like this except by repeated tapping. There are no physical signs by which we can be sure of its absence. With that obliterated diaphragmatic outline there is certainly a good chance of some fluid at that base, and if fluid, ordinarily pus or thin cloudy fluid which will be pus within a day or two.

So I believe she had probably in each lung patchy pneumonia, not lobar, with a hypertrophied and dilated heart, arteriosclerosis, and very possibly some passive congestion, although that is not very clear, being evidenced only by the edema of the feet. We notice that the white count is not at all high, and what is equally important, there is a low polynuclear count. That we have become accustomed to associate with a poor prognosis in pneumonia. It does not of course help us in any other way.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Lobar pneumonia, left lobe.
Auricular fibrillation.
Hypertensive heart disease.

DR. RICHARD C. CABOT'S DIAGNOSIS

Bronchopneumonia.
Hypertrophy and dilatation of the heart.
Arteriosclerosis.
Empyema?
Chronic passive congestion?

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Arteriosclerosis.
Hypertrophy and dilatation of the heart.

2. *Secondary or terminal lesions*

Septicemia, streptococcus hemolyticus.
Hemorrhagic edema of the lungs.
Congestion of the liver, spleen and kidneys.
Slight fatty metamorphosis of the liver.

3. *Historical landmarks*

Slightly defective closure of the foramen ovale.

DR. RICHARDSON: We were not permitted to examine the head. The pupils at the time of necropsy were about three mm. in diameter, rather small.

The gastro-intestinal tract was negative except that there was some slight reddening of the mucosa and that the pylorus was rather small in circumference, three cm.

The lungs showed well marked hemorrhagic edema, best marked in the lower lobes. The trachea and bronchi contained a moderate amount of reddish frothy fluid. There was no pneumonia, and no evidence of tuberculosis anywhere, although this was a colored woman.

The pericardium contained a slight excess of thin pale fluid. The heart weighed 390 grams,

somewhat enlarged for her, a good myocardium, the valves negative. There was slight dilatation of the heart. The coronaries were negative. The aorta and great branches showed considerable arteriosclerosis, fibrocalcereous, in places atheromatous in type. There was slight fibrous sclerosis of the great branches.

The liver showed congestion. The spleen showed a few old adhesions to the diaphragm. The tissue was brown-red and elastic,—congestion. The kidneys weighed 310 grams. The capsules stripped. The tissue was of good consistence, a little wet, the markings were made out, the cortex five to six mm. The pelves, ureters, bladder, uterus and adnexa were negative except for a uterine fibromyoma five mm. in diameter and a few old adhesions about the distal ends of the tubes and ovaries.

Culture from the heart blood showed a good growth of streptococcus hemolyticus. We found no foci of pus anywhere.

DR. CABOT: She had an acute septicemia. That is the infection which we were trying to pin to the lungs. It was not in the lungs, but it was the cause of death, I take it, and the heart was subordinate.

Does any of the work you have been doing, Dr. Bock, connect itself in any way with the problems of this case?

DR. A. V. BOCK: I think not. We are just starting some new work in connection with the work of the heart, the blood flow, to see whether there is any change of a compensatory nature in the amount of blood flowing through the heart in hypertension as compared with normal people. I was interested in hypertension clinically a year ago on account of the rarity with which we make a diagnosis of essential hypertension as contrasted with hypertension with nephritis. Before 1920 we never made the diagnosis apparently. From 1920 there were only one or two cases a year up to 1923, and the highest number in that year was about eight. Even now I think we are not distinguishing cases as they should be.

DR. CABOT: But that diagnosis is getting popular, the diagnosis of essential hypertension which has been unfashionable until lately. I suppose Dr. Batty Shaw's book may have something to do with it. It is the first book I know on it.

DR. BOCK: There does not seem to be enough study made of the cases to differentiate the question as to whether or not they have nephritis, and the doctors in the community I think often are giving bad prognoses when they are not justified. We cannot make such a prognosis by finding high blood pressure which is not backed up by evidence of chronic nephritis or serious changes in the circulatory system elsewhere. It does not mean much in many cases.

DR. FREMONT-SMITH: Doesn't the high pressure itself denote a bad prognosis? Could a person stand 220 to 250?

DR. BOCK: I think cases have been under observation with that blood pressure for ten or fifteen years, and are still living. I do not think we can tell anything about it.

CASE 11102

CHILDREN'S MEDICAL DEPARTMENT

A ten-months-old boy of French parentage entered January 5. The chief complaints were weakness and tenderness of the legs. His mother had an enlargement of the thyroid gland. Her first child died at fourteen months of "cholera infantum." Five other children were living and well.

The baby was normally delivered at full term and weighed seven and a quarter pounds at birth. He was breast fed for two weeks, then was put on Mellin's food because of diminished supply of breast milk. The water was boiled in preparing the food, but not the milk. He was given orange juice, but not every day. His bowels were constipated. He was now cutting his first teeth.

Three months before admission the baby had a cold, sneezed, and had nasal discharge. Since that time he had not been so active. For weeks before admission his mother noticed that he would not stand on his legs as he formerly did, and also that he cried when his legs were touched. There was no bleeding from the gums. The nasal discharge persisted.

Examination showed a well nourished baby lying quiet when not touched, but crying out, not screaming, upon the slightest manipulation of his legs. The head was asymmetrical, flattened in the back and elongated. No craniotables was made out. There was well marked rachitic rosary and enlargement of the epiphyses of the wrists. The hair was thin over the occiput. There was perspiration around the head. Two lower teeth were coming through. The abdomen was prominent. The left lower leg was swollen and more tender than the right, and its measurements were an eighth to a quarter of an inch larger.

For the first week the temperature ranged from 98° to 101.1°; afterwards it was normal. The pulse was 110 to 177, after January 12 not above 141. The respirations were 25 to 57. The urine was cloudy at one of five examinations and showed a very slight trace of albumin at one, a few to occasional red blood cells at two and leucocytes at one. The specific gravity was 1.014 on the one occasion when the specimen was sufficient for the test. The hemoglobin was 60 per cent., the leucocyte count 14,500 to 13,200, the polynuclears 73 per cent., the reds 3,900,000. A Wassermann was negative. Two Schick tests were positive. An electrocardiogram taken while the child was crying showed the rate 170, sino-auricular tachycardia. The blood calcium was 11.4 mgm. per 100 c.c. of plasma, the inor-

ganic phosphates 4.3 mgm. X-ray January 8 showed irregularity of the ends of the bones of the epiphyses. There was no definite evidence of periostitis and no definite Trummerzone. Just back of the epiphyses was an irregular line of decreased density. Another examination January 20 showed some disproportion between the size of the ends of the diaphyses and the epiphyses and some irregularity of the epiphyseal line. The lower end of the right femur showed a shadow of increased density running parallel with the cortex of the bone suggesting periosteal proliferation or even elevation. There was also a similar change about the inner aspect of the inner condyle of this femur. There was apparent periosteal reaction about the lower end of the left tibia. There was also some flaring of the ends of the diaphyses in the wrist joints and slight irregularity of the epiphyseal line of the radius.

The child was given the diet for his age with an ounce of orange juice three times a day. He continued to be quiet and contented when left alone, but began to cry if any attempt was made to move him. January 9 the measurements of the left lower leg were a half to three-quarters of an inch greater than those of the right. The child did not cry so much on being moved as at first. From this time the swelling of the left leg decreased. By the 14th the swelling was gone and the child was moving the leg freely with no apparent pain. January 25 he was discharged.

DISCUSSION

BY DR. FRITZ B. TALBOT

The outstanding symptoms in this case were the painful, swollen legs and some fever. The physical examination showed definite evidence of rickets, a marked rachitic rosary and enlargement of the epiphyses of the wrists.

The important feature was the differential diagnosis. Acute rheumatism might have to be considered in an adult, but it is practically unknown in infancy. In adults the swelling and tenderness are confined to the neighborhood of the joints; in this case the swelling and tenderness were distributed over the whole leg.

Although acute poliomyelitis occurs in infants the tenderness is present only during the acute stages of the disease. It lasts only a few days and then is followed by non-tender paralysis. In this case the tenderness of the legs persisted for weeks. In poliomyelitis there is no swelling. In infections of the periosteum or of the bone, as in acute periostitis and osteomyelitis, there is high fever of the aseptic type and with it an aseptic blood picture. In slow, insidious cases of the latter Roentgen ray examination should make the diagnosis clear. This case did not show a marked leucocytosis, the leucocyte count being 13,200 to 14,500. There were on the other hand 73 per cent. of polymorphonuclears,

which is a relative leucocytosis, since during infancy the differential count usually shows more mononuclear than polymorphonuclear cells. This condition is differentiated from scurvy with some difficulty and in many instances requires a therapeutic test for final diagnosis.

Some of the features of this case are consistent with scurvy. Scurvy frequently shows an increase in the pulse and respiration rate such as was seen here. On the other hand there was no evident change here in the ratio of the respiration to the pulse such as is found in some cases of scurvy. The electrocardiogram showed sinoauricular tachycardia; there was nothing characteristic of scurvy in this. There was some edema of the left leg with the swelling. There was no edema around the eyes. Edema of the upper eyelid is especially frequent in association with this condition. Although there was no evidence of bleeding in other parts of the body the urine contained an occasional red blood cell. This finding is by no means constant in scurvy, but is of some importance in diagnosis. The blood showed some evidence of anemia, the hemoglobin being 60 per cent. and the red cells 3,900,000. Because the gums did not show the characteristic purplish spongy appearance the diagnosis was uncertain until the therapeutic test had been applied.

Before we made this test of orange juice it was not perfectly clear whether we were dealing with a case of low-grade osteomyelitis or infectious scurvy. The X-ray examination, while not giving positive evidence of either, was more against osteomyelitis than scurvy. In this connection it must be remembered that in scurvy there is subperiosteal hemorrhage, which does not throw any shadow by the X-ray. After the hemorrhage commences to organize, that is, after several days or weeks there is a calcium deposit which then shows a shadow in the X-ray. The first X-ray examination showed no shadow. The second examination, however, showed what is described as a shadow of increased density running parallel with the cortex of the bone suggesting periosteal proliferation or even elevation. The rest of the X-ray examination was consistent with rickets, which the child had.

The evidence seemed to point against osteomyelitis; and even if the baby did have a low-grade osteomyelitis he did not seem sick enough to require immediate operation. The absence of spongy red gums of course did not rule out scurvy. The tenderness, swelling and mobility of the legs, the fact that whenever anyone came close to the bed the child's face took on an anxious expression characteristic of scurvy, and his way of crying out in pain whenever disturbed,—these points were taken as sufficient evidence of scurvy to warrant giving the therapeutic test. Therefore in spite of the fact that in the history mention was made of his having had orange juice, it was now given in large amounts. The symptoms of tenderness and swelling rapidly disappeared. This was

therefore shown to be a case of scurvy associated with rickets.

Scurvy is due to a lack of the antiscorbutic vitamin in the food. This vitamin is water-soluble and present in large amounts in fresh vegetables, especially in the fresh juices of orange, lemon, cabbage, onion, carrot and tomato. It is also present in smaller amounts in fresh cow's milk, but is destroyed by heating and apparently destroyed by age. The temperature and time of drying and age of dried food are important factors in considering their possible content of antiscorbutic properties. It appears that tomato withstands heating better than any other vegetable thus far studied. 15 c.c. of tomato juice is apparently well tolerated by infants of three months or more. It is stated that one pint of fresh milk daily may contain enough antiscorbutic substance to prevent scurvy, but pasteurized milk or milk that has become stale has decidedly less.

With the widespread use of pasteurized or sterilized milk or dried milks the possibility of scurvy must always be borne in mind in infant feeding. It is probable that it can develop in two to three months on such feeding. It can be prevented by orange juice. About a third of a teaspoonful of orange juice daily may protect an infant against scurvy. Consequently infants fed on pasteurized milk should receive orange juice or some other antiscorbutic food very early in life. It may be started as early as one month of age. In my opinion, however, this is unnecessary in the majority of instances; but all babies should receive some food containing the antiscorbutic factor if they are on heated milk for more than two months and a half.

There is occasionally an infant who cannot take orange juice in large amounts. If such children are given the juice in very small amounts at first, for example, five to ten drops a day, gradually increasing a drop at a time, they usually become used to it and digest it perfectly. In case they are unable to take orange juice they may be given some other type of antiscorbutic, as for example the juice of canned tomatoes. The following foods apparently have no antiscorbutic value: banana, prune juice, beans, germ of wheat, yeast, dehydrated vegetables, and olive and cod liver oils.

The therapeutic effect of the antiscorbutic factor frequently is very rapid and in a large number of instances brilliant, five days usually being sufficient to change an anxious, sick baby who screams whenever it is touched to a laughing, happy, normal child. Occasionally it takes longer to obtain results.

The complications of the disease are of two types. Profuse bleeding is rather uncommon, but at times bleeding can be very pronounced, not so pronounced, however, as in the adult. At times the hemorrhage may be great enough to result in protrusion of the eyeball. There is a distinct tendency to infection, occasionally a marked diarrhea with blood-tinged stools. In

the last instance an antiscorbutic may be given with impunity.

The prognosis is usually good when the disease is recognized early, and very rapid cure may be expected. Complete recovery takes place in nearly all cases. The rapidity of cure depends upon the length of time that the disease has persisted. In cases of long standing less rapid improvement is to be expected. Death results very infrequently, and is usually due to hemorrhage or some complication.

X-RAY INTERPRETATION JANUARY 20

The findings are consistent with rickets, possibly associated scurvy.

DIAGNOSIS

Scurvy.
Rickets.

CASE 11103

SURGICAL DEPARTMENT

An unemployed English Jew of sixty-four was sent September 4 from the Consultation Clinic complaining of indigestion and huskiness. The history is taken from the records of that clinic and of the Out-Patient Department.

F. H. His wife had had two miscarriages. Four children lived one month, three died young, three were living and well.

P. H. At twenty-four he had chancre, untreated until he was fifty-six, when he had three injections of salvarsan and mercury by mouth and intramuscularly over a period of three years. At fifty-eight he was in a Boston hospital with pneumonia and empyema. At sixty a lumbar puncture and four blood tests at that hospital were said to be negative. A diagnosis of paralysis agitans and cirrhosis was made.

P. I. For twenty years he had had indigestion. For a year his voice had been husky. He had pain about the epigastrium and costal margin without relation to meals, not relieved by food. He had much gaseous eructation. At his latest visit to the Consultation Clinic he gave a history of jaundice of five weeks' duration, not decreasing. Since the onset he had had pain below the right costal margin and much itching. He vomited once. His stools were drab. During the past six months he had lost weight. Examination showed typical expressionless features, constant tremor of the head, and dark jaundice. Associated movements well performed. No propulsion gait or hypertonicity of muscles. Knee-jerks greatly increased. Pupils irregular, reacted well to light. Lungs negative except for absence of breath sounds below scar. Heart negative. Abdomen. Liver edge just felt, sharp. Slight tenderness in the gall-bladder region, but gall-bladder not felt. Right kidney palpable. Right inguinal hernia

with sac. Wassermann negative. X-ray August 23. Esophagus apparently normal. Stomach of orthotonic type, otherwise normal. Duodenum normal. Motor meal found in terminal ileum at the end of six hours, and had reached the rectum at the end of twenty-four hours. Appendix not seen. Colon as determined by motor meal seen in usual position and not abnormal in contour. No definite evidence of organic disease in the stomach or duodenum. Gall-bladder plates unsatisfactory.

In the wards the patient said that he had pain in the epigastrium, sometimes referred to the left shoulder but generally straight to the back.

P. E. A poorly nourished, markedly jaundiced, nervous appearing man, his head at times shaking intermittently as in paralysis agitans. Skin showed multiple excoriated areas, especially on the legs. Old scar on lower right back where rib was resected. *Heart and lungs* normal. *Abdomen*: Slight epigastric sensitiveness but no definite mass or spasm. On coughing two distinct bulges could be seen and felt in both inguinal regions. *Rectal examination*. Prostate very hard. *Genitals*. Scar of old chancre. *Extremities*. Tremor of hands. *Pupils* normal. *Reflexes*. Knee-jerks hyperactive.

Before operation chart normal, *urine*, sp. gr. 1.008, findings negative, *blood* not recorded, *bleeding time* two minutes, *coagulation time* 4½ minutes, *Wassermann* not recorded; *stools*, much fermentation, fats and spasm. No blood. *X-ray*. A large amount of gas in the colon, no definite evidence of gall-stones.

September 6 operation was done. It was followed by some productive coughing and profuse drainage of bile. A week later the patient complained of loss of appetite. September 20 the stools showed a small amount of bile. The urine was high colored. September 25 three gall-stones were removed from the draining bile, two about a centimeter in diameter, the other smaller. The patient did not gain. He was given ox gall with no great effect. September 29 he complained much of loss of appetite, "sickly feelings" in the epigastrium, and weakness. The drainage of bile continued unabated. October 1 he vomited and ate no supper. He complained of bad epigastric pain and something that "caught him when he talked." He had prolonged spells of hiccup, failed very rapidly, and October 4 died.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

It would be interesting to have this family history chronological. As it stands it is a typical textbook story of specific infection with mis-carriages when the virus was most active, the family history growing better as the infection grew milder.

Of course with jaundice we have to centre his trouble either in the liver as a cirrhosis or a mechanical blocking of the ducts either from stone or from adhesions of old inflammatory processes, or malignancy. We have no X-ray evidence that helps us one way or the other. As we have said before, the indirect evidence given by the barium meal is often more important than the direct evidence, and here neither shows anything definite. The one thing it suggests is that if for twenty years he has had trouble, and if there has not been enough inflammation to catch the duodenum and distort it, then presumably there is not enough in the line of adhesions to cause the jaundice, and we are a little more suspicious of stone.

The story elicited about the relation of pain to food is helpful in a great many cases and sometimes confusing. That is, a clean-cut duodenal or peptic ulcer will give a history of more or less definite relation of the trouble to food, coming on more or less regularly after food, relieved by food or by soda, and a clean-cut gall-bladder story will not have that. There is no relation to food except that the patient may think that this, that, or the other article brings on the so-called "bilious attacks." Occasionally where the inflammatory process in the gall-bladder has caused an adhesion and sometimes even an ulceration in the duodenum there is definite confusion in the story. In this case it is pretty clear that there is no relation to meals, that it is not relieved by food. He does not give the story of severe attacks, but he has pain and has had pain in the ward which was sometimes referred to the left shoulder, generally straight to the back. Of course pain referred to the left shoulder and back always makes us think of gall-bladder trouble.

I do not see the evidence on which to say cirrhosis, as we have it here. There is no evidence suggestive of portal stasis, and it seems to me that the best diagnosis is chronic cholecystitis which has been going on for a long time and which may now be and probably is associated with stones. But even with what I said about the absence of X-ray evidence on the duodenum, still the whole thing may be inflammatory.

When they said that the stools were "drab" did they mean clay-colored?

DR. TORR W. HARMER: He had very light stools. It was a complete obstruction.

DR. YOUNG: Of course on the basis that chronic irritation causes carcinoma it is always possible that a carcinoma can now be present, although from this story we know that he did not start carcinoma twenty years ago. It seems to me that the evidence we have here would make us put down the diagnosis I have said, and that the only treatment possible that can be considered is operation. His bleeding time and coagulation time were within normal limits. Did he receive calcium?

DR. HARMER: No.

DR. YOUNG: In some clinics it is a routine to

give all jaundiced patients coming to operation intravenous calcium beforehand.

DR. HARMER: This was really a very interesting case. The story as given here rather leads us to believe that he had something of an inflammatory nature, apparently a chronic cholecystitis, very likely with stone. However, as we saw him in the ward he seemed to be pretty comfortable except for his itching. We held him for some time before we operated on him, and we rather thought there was considerable possibility of his having malignant disease of the pancreas. On account of his blood being absolutely normal he did not have a pre-operative course of calcium. He was operated on with the idea that he very probably might have a cancer of the pancreas, and that some operation to divert the bile into the gastro-intestinal tract might be all that could be done. There was however a very good possibility of his having stones and of being cured by the operation.

The operation was done. A great mass of adhesions was found in the region of the gall-bladder. This bled, despite his coagulation bleeding test, very profusely, so that there was quite an anxious time before we could get down anywhere. Then I felt a great stone in the common duct as large as the end of the thumb. The man's condition was not too good then, so I simply opened the common duct, evacuated this stone and another a little smaller in size above it. I felt the gall-bladder filled with stones and the cystic duct also, so I carried the incision up the cystic duct and evacuated what I could to prevent anything running down to block the papilla again. However, several stones were so fixed in the gall-bladder that they could not be dislodged. Without taking further time these were left.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Cholecystitis.
Cholelithiasis.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the pancreas.
Gall-stones?

OPERATION

Gas and ether. Seven inch upper right rectus muscle splitting incision. The right upper quadrant of the abdomen was matted together with adhesions. After some difficulty with freeing the gall-bladder was exposed and the ducts were gradually freed. The common duct was very greatly dilated and contained a stone about seven-eighths of an inch in diameter. In freeing the duct down to the pancreas a very obstinate smart oozing hemorrhage occurred from the torn adhesions. It was checked with difficulty. It seemed to proceed from small vessels over the head of the pancreas. The patient, who had been cyanotic through most of the operation, was now in poor condition. Accordingly

the common duct was opened over the stone and the stone removed with several other smaller stones above it. One large stone was felt in the fundus of the gall-bladder but could not be dislodged. The patient's condition did not warrant further operation.

FURTHER DISCUSSION

DR. YOUNG: Two weeks after operation he showed a small amount of bile. He died nearly a month after operation.

It sounds like one of those cases where the obstruction to the flow of bile had been cut off long enough so that there was damage to the liver, which in some of these cases is not overcome. The decompression brought about by the operation does not allow the liver function to come back to normal and the patient dies of the obscure condition of cholemia, if you will. Whether that is true or not here, or whether there is sepsis,—because of course all of these cases are of lowered resistance and an operation which is perfect so far as technique can make it will nevertheless result in some sepsis because of the lowered general resistance,—whether that is true here is hard to say.

Of course Dr. Harmer knew that he left behind some stones, so that their removal from the drainage was not surprising. Also we know from our cases here that in a surprisingly large number of cases where stones were present in the common duct at the time of operation, in spite of the most careful work on the part of the surgeon not all the stones removed. So it is not at all surprising that stones were found.

That, it seems to me, is all I have to add in general. What in particular?

DR. CABOT: You do not believe that there was any cancer?

DR. YOUNG: I do not see that we have any reason to believe it. We have plenty to account for his death.

DR. CABOT: Did you ever see ox-gall do a patient any good?

DR. YOUNG: Once only, and I think it did the patient most good because she thought it should. I have not seen it do any actual good, other than perhaps lessening fermentation.

DR. CABOT: Does anyone else here think it does good?

DR. BOCK: I am not enthusiastic.

DR. HARMER: I do not think it means very much. It was given to this man. He was draining a great deal of bile. He would not eat anything, and we thought it might help his appetite if he had a little bile.

Dr. Young is very gracious in speaking about the possibility of leaving stones, and I need to lean on that a good deal. This man bled very greatly. We found this large stone and the one above it and several above that. We got those out hoping to relieve the obstruction. As a matter of fact the man never picked up at all and died in about a month. Inasmuch as he

passed more stones after his operation it was quite obvious that some, perhaps a good many, had been left. The fact that he drained a little bile suggested that he may have received some little relief but that other stones came down and occluded.

Dr. YOUNG: I think it is very common to leave them behind, as Dr. Richardson has found here and I think that the reason it has not been recognized more is due to the fact that there is loss of the stones in the drainage and that the sphincter of Oddi is often dilated and that they do come through into the duodenum without stopping at the sphincter and causing symptoms.

Dr. HARMER: I want it understood that this man was in a very poor state, and although I usually do probe the duct, in getting these four stones I felt delighted, backed out and was glad to get through.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cholecystitis.
Cholelithiasis.
Cholecystotomy.
Common ductotomy.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Cholecystitis.
Cholelithiasis.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesions

Chronic cholecystitis.
Gall-stones in hepatic and common bile ducts.

2. Secondary or terminal lesions

Septicemia, staphylococcus.
Abscesses of liver.

3. Historical landmarks

Luetic aortitis and arteriosclerosis.
Chronic pericarditis.
Emphysema of the lungs.
Cholecystotomy.
Chronic pleuritis.

Dr. RICHARDSON: The head was not examined. There were fibrous adhesions in the peritoneal cavity. There was no fluid and no evidence of peritonitis and the appendix was negative.

Some chronic pleuritis. The lungs except for some emphysema were negative.

The pericardium was bound down everywhere by old fibrous adhesions,—chronic adhesive pericarditis. The valves and cavities were negative. There was considerable arteriosclerosis in the aorta above the diaphragm and in the ascending thoracic portion areas of luetic aortitis.

The gall-bladder was small, involved in inflammatory tissue, with no evidence of carcinoma. The hepatic and common bile ducts were dilated up to one and a half cm. and con-

tained about eighteen stones. These were hard, faceted, and varied in size up to one and a half mm. There was some mucopus in the common bile duct. The liver was small, the radicles of the hepatic duct dilated, and in the right lobe there was a group of small abscesses. Cover-glass from the pus in these abscesses showed the bacillus pyocyaneus. The culture from the heart blood showed a slight growth of the staphylococcus.

The spleen, adrenals, kidneys, bladder, prostate, seminal vesicles and testes were negative.

Dr. YOUNG: You say nothing about the liver itself. Is it not damaged? Don't you think as the function of that liver goes it is probably unable to do its work, or is there any way of telling?

Dr. RICHARDSON: Yes, there was dilatation of the ducts, some pus, and the stones and the liver abscesses. The liver showed no definite evidence of any increase of interstitial tissue, no cirrhosis.

Dr. CABOT: What was the weight of the heart?

Dr. RICHARDSON: The heart weighed 325 grams.

Dr. HARMER: That is interesting in view of the adhesive pericarditis. Why was there no hypertrophy?

Dr. CABOT: Most of the cases we have had here have not been hypertrophied. The largest hearts that we have ever had have been in chronic pericarditis in young people with rheumatic history. There is another group in which we simply find it as a landmark in older people, in which it is of no importance and no one will ever discover it. Those are two quite separate groups.

Dr. HARMER: The pathological specimen is remarkable, a Y of gall-stones formed by the hepatic and the common duct.

CURRENT LITERATURE

ABSTRACTORS

GERARDO M. BALBONI	TRACY MALLORY
WILLIAM B. BREED	HERMAN A. OSGOOD
LAURENCE D. CHAPIN	FRANCIS W. PALFREY
AUSTIN W. CHEEVER	EDWARD H. RISLEY
RANDALL CLIFFORD	GEORGE C. SHATTUCK
ERNEST M. DALAND	WILLIAM H. SHEDDEN
HORACE GRAY	WARREN R. SISSON
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2ND	GEORGE G. SMITH
JOHN S. HODGSON	W. T. SHERMAN THORNDIKE
FRED S. HOPKINS	WILDER TILESTON
CHESTER M. JONES	HENRY R. VIETS
CHARLES D. LAWRENCE	SHIELDS WARREN
BRYANT D. WETHERILL	

DRACONTIASIS

FAIRLEY (*Ind. Med. Gaz.*, Sept., 1924) presents a comprehensive paper on the treatment of guinea-worm disease. Treatment is based on the particular pathological condition present and varies according to the stage in which the lesion is first observed, and the presence or absence of complications, especially septic infection.

In operating on a worm located prior to blister formation it must be remembered that rupture of the parasite is very liable to cause urticaria and vomiting. After blister formation this need not be feared. When a blister is present it is good practice to aspirate the fluid in order to limit the size of the subsequent ulcer. Perivesicular oedema is often excessive in this stage, and if so it is advisable to postpone operation until it has subsided. Once the blister has ruptured and an ulcer formed care must be taken to avoid septic complications. Breakage of the worm under such circumstances is followed by local abscess or cellulitis which may demand immediate surgical intervention.

When the worm is closely convoluted, occupying a limited area of tissue, excision en masse is the correct treatment. Local injections of antiseptics and narcotics are of very doubtful value. The risk of super-added chemical inflammation outweighs any advantage from the death of *D. medinensis*, unless its absorption in situ can be thereby attained. This result is likely only when worms are located prior to blister formation when the risks of secondary infection are remote.

The subcutaneous injection of adrenaline immediately relieves the distressing prodromal symptoms, such as urticaria, erythema and asthma, which so often herald the appearance of *D. medinensis* in the tissues. Its use in this stage of the disease is advocated.

[L. D. C.]

MALIGNANT EPITHELIAL TUMORS OF THE THYROID

GRAHAM, A. (*Surgery, Gynecology & Obstetrics*, Dec., 1924).

This author discusses this condition, and especially with reference to the invasion of blood vessels, and draws the following conclusions:

1. At least 90 per cent of malignant tumors arising from thyroid epithelium have their origin in pre-existing adenomata.

2. The morphological character of the cells and tissue is an unreliable basis for the determination of malignancy of thyroid epithelial tumors.

3. The malignancy of thyroid epithelial tumors depends upon their tendency or capacity to invade the capsule surrounding tissue, lymphatics, or blood vessels.

4. The most constant single indication of thyroid epithelial malignancy is invasion of the blood vessels.

5. Scirrhous and papilliferous adenocarcinomata are the only two types of epithelial malignancy in which invasion of the blood vessels has not been observed. These two types together constitute about 15 per cent of the total and are primary lymphatic invaders.

6. Epithelial tumors that are encapsulated and show no invasion of the blood vessels are benign, irrespective of their microscopic appearance otherwise.

7. Epithelial tumors in which one finds invasion of the blood vessels cannot be regarded as entirely harmless, irrespective of their microscopic appearance.

8. The term carcinoma is proper for epithelial tumors of the thyroid that are malignant, regardless of their microscopic appearance. The term malignant adenoma is useful and convenient for the purpose of denoting a subgroup under carcinoma but is not, strictly speaking, correct terminology. Such terms as wuchernde struma, proliferating adenoma, metastasizing adenoma, metastasizing colloid struma, metastasizing colloid goiter, and "metastasizing normal thyroid" are confusing, misleading, inaccurate, serve no useful purpose, and should be eliminated.

9. In view of the present available data the diagnosis and classification of malignant epithelial tumors of the thyroid present no greater difficulties

and require no more complicated nomenclature than is commonly encountered in other organs and tissues of the body.

[E. H. R.]

CLINICAL STUDIES ON THE KAHN REACTION FOR SYPHILIS

KEIM, H. L. and KAHN, R. L. (*Archives of Derm. & Syph.*, 10:722, Dec., 1924), studied the diagnostic value of the Kahn precipitation test for syphilis in 2,600 cases in comparison with two Wassermann tests—one highly sensitive and one more conservative in character—with the following results: In primary syphilis (twenty-five cases), the Kahn test was found slightly more sensitive than either of the two Wassermann tests. In secondary syphilis (sixty-four cases), there was agreement in the three methods. In tertiary syphilis, excluding cerebrospinal (eighty-seven cases), the Kahn test was found slightly more sensitive than both Wassermann tests except that in visceral syphilis it compared with the more sensitive Wassermann test. In cerebrospinal syphilis (192 cases), the reaction with the Kahn test fell about midway between the highly sensitive and conservative Wassermann tests. In latent syphilis (218 cases), the reactions with the Kahn test compared favorably with the reactions with the long icebox fixation Wassermann test. In congenital syphilis (thirty-nine cases), the Kahn test was slightly more sensitive than either of the two Wassermann tests. In nonsyphilitic controls (1,975 cases), the Kahn test gave two one plus reactions and two two plus reactions in dermatologic conditions apparently nonsyphilitic.

[A. W. C.]

MYOSITIS OSSIFICANS

NOBLE, T. P. (*Surgery, Gynecology & Obstetrics*, Dec., 1924).

Noble presents a clinical and pathological study of this condition, discussing the theories of causation, the microscopic characters, clinical appearances, X-ray appearance, differential diagnosis, prognosis and treatment, and draws the following conclusions:

"Myositis ossificans is a comparatively rare disease. It follows both open and closed trauma, occurs after acute infections, and spontaneously when there has been no history of infection or trauma.

"Myositis ossificans, occurring in the quadriceps, is often confused with sarcoma, and differential diagnosis is important.

"The commonest sites of myositis ossificans are the quadriceps and the brachialis anticus. The treatment in the early stages is rest and fixation. If operative procedures are carried out in the early stages, recurrence is practically certain. Operation is only to be considered after 6 months, and if distinct functional disability exists."

[E. H. R.]

EMETINE IN AMOEBIC ABSCESS

Fry (*Ind. Med. Gaz.*, Oct., 1924) reports two cases of large amoebic abscesses of the liver. In both the abscess was situated in the right lobe. The clinical diagnosis was confirmed by X-ray examination, but no exploratory puncture was done. Clinical cure of both patients with complete absorption of the abscesses was attained by the hypodermic administration of emetine hydrochloride. Coexistent helminthic infestations required eradication in both cases. The spontaneous absorption of a large sterile abscess is in no way detrimental to the patient. Aspiration could probably be dispensed with in many such cases.

[L. D. C.]

THE COTTON-WOOL PLUG TEST FOR INDICAN

GORE (*Ind. Med. Gazette*, Aug., 1924) describes his cotton-wool plug test for the qualitative and quantitative estimation of indican in the urine. This test was devised primarily for applying Ehrlich's reaction to detect indol in the sputum. The detection of indican in urine is as a rule effected by its decomposition and the oxidation of the indoxyl set free to indigo blue. Obermeyer's test, which is in general clinical use, is based on this principle. The cotton-wool plug test depends upon the presence of a volatile Chromogen in the urine. Two reagents are used: (1) 1% potassium persulphate; (2) P-dimethyl-amido-benzaldehyde 1 gm., absolute alcohol 95 c.c., concentrated hydrochloric acid 20 c.c. The technique is as follows: 2 c.c. urine is poured into a test tube fitted with a white absorbent cotton-wool plug. The plug is removed, its under surface moistened with a drop or two of the solutions, and then replaced. The urine is then boiled intermittently for one minute, and a pink color on the cotton-wool is a positive test for indican. The volatile chromogen in the urine responding positively to the cotton-wool plug test resembles indol in its reaction and is proportional to the indican as determined by Obermeyer's test. The writer finds that by means of dilution tests the amount of indican in the urine can be approximately estimated and expressed in terms of its indol equivalent—a satisfactory method of quantitation.

The advantages of the cotton-wool plug test over Obermeyer's test are that it is simpler, more rapid, more economical in reagents required, and that it is not affected by drugs ingested by the patient.

[L. D. C.]

ENDEMIC GOITER IN CHILDREN

NICHOLSON (*Ind. Med. Gaz.*, June, 1924) studied the records of cases of goiter occurring in the Royal Lawrence Military School, Sanawar, since 1899. During these 25 years the goitrous children numbered 271, of whom 145 were boys and 126 girls. It was noted that among the boys goiter was more liable to spontaneous cure and less liable to fluctuations and remissions than among the girls. In 1910 and again in 1913 a large proportion of the wards were inoculated against typhoid fever, and it was thought at the time that the vaccines used had a beneficial effect on the goiters. From careful study of the records, however, the writer is convinced that the inoculations had no effect, curative or prophylactic, near or remote, on the endemic goiter prevalent at the school. This condition is peculiarly liable to spontaneous disappearance and reappearance among children, and this fact should be kept in mind in judging the effect of any form of treatment.

[L. D. C.]

THE TREATMENT OF STAPHYLOCOCCUS AND STREPTOCOCCUS MENINGITIS BY CONTINUOUS DRAINAGE OF THE CISTERNA MAGNA

DANDY, W. E. (*Surgery, Gynecology & Obstetrics*, Dec., 1924).

Dandy draws conclusions as follows:

1. Early continuous drainage of the cisterna magna is advocated for the treatment of meningitis in which the infecting organism is staphylococcus and streptococcus.

2. Three of 4 cases so treated survived; 1 case of streptococcus viridans, 1 of streptococcus haemolyticus, and 1 of staphylococcus aureus. In the unsuccessful case the organism was streptococcus haemolyticus.

3. This method is not urged in other forms of meningitis because it is felt, though not proven, that the character of the inflammatory exudate would probably make drainage impossible.

[E. H. R.]

FRACTURES OF THE SHAFT OF THE FEMUR

ANDRUS, W. D. (*Annals of Surgery*, Dec., 1924). Andrus treats these cases by means of balanced traction and presents an interesting paper on the analysis of the immediate results in forty cases. The article is profusely illustrated with drawings and X-ray plates. He draws the following conclusions from his observations:

1. Forty fractures of the shaft of the femur (33 simple and 7 compound) are reported in patients from 13 to 79 years of age, with a 15 per cent. mortality.

2. Treatment in the majority consisted in primary immobilization in a Thomas splint with closed reduction and application of a plaster spica later. Several were treated entirely by means of the Thomas splint.

3. There were 12 reductions with 2 infections (16.6 per cent.).

4. The average hospitalization time was 58 days for the simple and 149 days for the compound fractures.

5. The average shortening was 1.8 cm. in the simple cases and 2.3 cm. in the compound.

6. Three cases were discharged before union was complete; the remainder had firm union at the time of discharge.

7. Nine cases were discharged with no active motion in the knee; 13 with 30 degrees of mobility; 5 with 60 degrees; and 2 with full motion.

8. An early attempt at reduction and immobilization influences markedly the hospitalization time and the end results in fractures of this type.

[E. H. R.]

THE TOXICITY OF EMETINE

CHOPRA, GHOSH and DE (*Ind. Med. Gaz.*, July, 1924) report results of experiments on rabbits, in which they tested the toxicity of emetine. They find that emetine is a general protoplasmic poison having a selective action on the cells of certain organs. The parenchyma of the heart muscle is one of the earliest to be affected, the changes being cloudy swelling of the muscle fibers, followed by shrinking and later by atrophy and replacement by connective tissue. This may explain some of the cardiac symptoms which patients complain of when under emetine treatment. The presence of petechial hemorrhage at the site of injection and in other organs shows that emetine has a selective action on the endothelium of the capillaries. The liver and kidneys are also affected, the changes being chiefly congestion and fatty infiltration of the parenchyma.

In the treatment of amoebic dysentery, a smaller number of injections of emetine are required to effect a cure, if large doses of bismuth subnitrate or carbonate are given by mouth.

[L. D. C.]

PARALLELISM OF PHYSICAL AND MENTAL DEVELOPMENT

PAULL, a school physician of Karlsruhe, compares (*Munch. Med. Woch.*, Oct. 23, 1924) and tabulates the proficiency of boys and girls in spelling and arithmetic with relation to height and weight, and demonstrates a striking parallelism between these phenomena of mental progress and normality of physical development.

[R. M. G.]

FRACTURES AND PSEUDO-FRACTURES OF THE SESEMOID BONES OF THE GREAT TOE

KOCH, from Tilman's surgical clinic at Köln, discusses (*Munch. Med. Woch.*, Sept. 5, 1924) the literature and reports two original cases of fracture of the sesemoid bones of the great toe, and describes their diagnosis, treatment, and prognosis.

[R. M. G.]

THE PROBLEM OF SOCIAL ADJUSTMENT FOLLOWING
EPIDEMIC ENCEPHALITIS IN CHILDREN

COLE, BLANCHE E. (*Mental Hygiene*, October, 1924). The author reviews her experience as a social worker at the Institute for Juvenile Research, Chicago. She studied ten cases of behavior difficulties following epidemic encephalitis. The sequelae most frequently noted were various respiration disorders with very rapid, panting respiration; irregular, choreiclike movements, with marked restlessness; behavior activities of sudden and unaccountable forms; strabismus; tremors; in some cases a stiff gait; and "old man" appearance; and a general slowing up of speech and muscle movements. She found no deterioration of intelligence, as revealed by psychometric or educational tests, which was a striking contrast to the appearance and behavior of the patients. Distractibility and emotional upsets were common.

All these children, previously in good health, manifest behavior of the most annoying, distressing, and unaccountable forms. They readily lose their temper and, in an angry outburst, may throw knives or plates at the mother or attack another child, inflicting serious injury; they are restless and impatient, and may burst into tears on the slightest provocation or apparently for no reason at all. They have periods of extreme irritability in which they are entirely disobedient or nag and complain. They are sent to the store and forget every errand for which they were sent. They may spit at persons or objects, swear, stamp their feet, and laugh foolishly and inopportunely. They may have frequent attacks of rapid, deep breathing. They may steal, play truant, and take part in a number of delinquent acts of which they never have been guilty before. They are dominating and unreasonable and are teased and shunned by other children. They are equally intractable at home and at school. Their neighbors, as well as their families and teachers, find them very trying, not infrequently intolerable. Because of this behavior the patients are cajoled, bribed, scolded, threatened, whipped, expelled from school, and sent to truant schools and to institutions for delinquents, for the insane, and for the feeble-minded.

Institutional treatment is inadequate. They do not properly belong in any of the existing state or other institutions, since they are not feeble-minded or insane or delinquent in the ordinary sense of those terms, and neither hospitals nor schools are equipped to take care of them. From the point of view of a uniformed public, they are a nuisance and a menace; to the few who understand somewhat the nature of their trouble, they are an unfortunate group whose difficulties and needs demand special and immediate provision for treatment.

Social treatment consists in educational work with parents, teachers, and other adult persons involved; in establishing for the patient a regime of life that will aid in his convalescence; and in protecting the mental health of other members of the family by resolving the conflicts that are almost sure to arise. Briefly, the problem is to protect the patient from his environment and the environment from the patient. Ideally, of course, the solution would be for all such patients to be sent to an institution especially for them, to remain there until a cure or a permanent arrest of the difficulty occurred. But so far that is not possible, and in most cases treatment will have to continue to be carried on in the home.

This excellent paper on a most important aspect of encephalitis is completed by a concise bibliography.

[H. R. V.]

THE TREATMENT OF SPASTIC PARALYSIS BY
SYMPATHETIC RAMISECTION

ROYLE, N. D., Sidney, Australia (*Surg., Gyn. and Obst.*, Dec., 1924).

This author presents a very interesting and thor-

ough article on this subject. In the first part of the article the problem of the treatment in spastic paralysis is discussed, also experimental work on animals. A summary of experimental results is then given. The rest of the article is devoted to discussion of the operation on the human subject and the clinical results, with a very detailed description of the operative procedure, accompanied by some excellent plates showing the details of the author's operation. He states in conclusion that the treatment of this condition by sympathetic ramisection is sufficient in a few instances to allow the patient to move freely after operation. In the greater number, however, educative or reeducative measures must be also employed. The author believes that there is very little to be gained from the use of electric treatment and massage as they tend to increase the reflex activity of the spinal cord.

[E. H. R.]

ANIMALS AS DISSEMINATORS OF HOOKWORM DISEASE

CHANDLER (*Ind. Med. Gazette*, Nov., 1924) discusses the importance of animals as disseminators of uncinariasis. He has shown that domestic animals scatter hookworm eggs and larvae in three ways:

1. By acting as hosts for adult parasites and thus scattering the eggs in their faeces. Although dogs and cats are negligible as hosts of human hookworm, pigs harbor a species which closely resembles the human and is probably merely a hostal variety of it.
2. By transferring matter containing eggs or larvae on their feet or other parts of their bodies, the value of the elimination of this means of dissemination is greater in view of the absence of active lateral migration on the part of the larvae themselves.

3. By ingesting fresh faeces and evacuating the unchanged eggs contained in them in their own faeces. The passage of eggs unharmed through the digestive tracts of pigs, rats, and dogs has been proven. These animals feed very commonly on human faeces, and viable hookworm eggs are passed for at least seventy-two hours after ingestion. The use of these animals as scavengers is therefore a dangerous practice.

[L. D. C.]

THE TREATMENT OF PERNICIOUS VOMITING IN PREGNANCY BY GASTRIC LAVAGE AND CARBOHYDRATE RECTAL FEEDING

DENYER, STANLEY E. (*The British Medical Journal*, Sept. 13, 1924) summarizes the treatment in cases of pernicious vomiting in pregnancy as follows:

1. Rest in bed.
2. Gastric lavage, with solution of sodium bicarbonate 1 drachm to the pint, one or two pints being used.
3. Solution of adrenaline, 5 minims hypodermically every three hours for a few doses until the vomiting ceases, or the adrenaline solution may be given by the mouth in doses of 10 to 20 minims in a little water. It will be found that this drug is very efficient in stopping many kinds of vomiting.
4. The omission of all feeding by the mouth, at first, and feeding by rectal salines containing from half an ounce upwards of glucose to the pint, with a small quantity of sodium bicarbonate added if there is any diacetic acid in the urine.
5. The addition to the evening salines of 30 grains of potassium bromide to help sleep and reduce irritability of the nervous system.
6. The gradual increase in feeding by the mouth, beginning with small feeds of water as described above.

[R. C.]

THE PATHOLOGY AND SURGICAL TREATMENT OF ANGINA PECTORIS

DANIELOPOLU (Professor) (*British Medical Journal*, Sept. 27, 1924) discusses the pathology and surgical treatment of angina pectoris and suggests that in angina pectoris there should be cut the cervical sympathetic cord, and the vertebral nerve above the inferior cervical ganglion, the nerve of Hofer, or any corresponding nerves present, and the nerves which spring from the cervical sympathetic cord above the superior cervical ganglion and pass to the heart. Thus, whilst preserving the important centrifugal nerves which are essential to the action of the heart, we are cutting the greater number of ascending sensory fibres to which is assigned an important part in the launching of the anginal attack. Only by this operation as detailed can permanent benefit be obtained. The lateral sensory group which enters the thoracic cord is certainly left intact, but, as previously shown, this group is of only secondary importance. Since the principal site of the anginal attack is the left side of the heart, and it is the sensory nerves of the left side which are mainly affected, the operation must be performed on the left side in the first place. Is it necessary to complete it on the right side? It would be difficult to give any categorical answer, but it is more than likely that in the majority of cases the operation on the left side would be sufficient. None of the surgical methods suggested can yet be considered the ideal; it is certain that cervicothoracic sympathectomy must be absolutely abandoned, whilst each of the other methods has as yet done no more than establish a right to be considered in therapeutics. In the present state of our knowledge regarding the innervation of the heart and aorta in man it is only possible to outline a hypothesis, but research is proceeding. It is unnecessary to add that the hypothesis can be modified or even abandoned in the face of fresh facts if they show that it is faulty, but at the present moment the line of reasoning set out above is the only one that seems legitimate.

[R. C.]

DYSENTERY AS A CAUSE OF ASCITES

MEGAW and MAITRA (*Ind. Med. Gazette*, May, 1924) studied the relation between dysentery and a common form of ascites occurring in India. Their clinical and bacteriological findings indicate that the commonest form of ascites in India is not due to cirrhosis of the liver but to a fibrosis of the peritoneum resulting from irritation by the toxins of the bacilli of dysentery—a chronic dysenteric peritonitis. The best means of controlling this disease lies in the proper treatment of bacillary dysentery by salines. This removes the toxins rapidly from the intestine, thus tending to prevent their escaping through the bowel wall to the peritoneum. Chronic dysenteric peritonitis is very common in India and it is important that its true nature be recognized. It merits the attention of surgeons; in the cases in which fluid accumulates slowly in the peritoneum some system of drainage into the subcutaneous tissues can perhaps be devised. Tapping should be resorted to only when absolutely necessary, as it leads to the more rapid outpouring of fluid and consequently to the more rapid starvation of the tissues.

[L. D. C.]

RENAL TUBERCULOSIS DURING PREGNANCY

STEVENS, W. E. (*Surgery, Gynecology & Obstetrics*, Dec., 1924).

This author reports a case of his own and eight cases out of the literature. In twelve patients nephrectomized for renal tuberculosis during pregnancy, the results were as follows: all of the nephrectomized mothers recovered; normal children

were delivered at term in six of the cases in which the effect on the pregnancy was mentioned; abortion occurred in three, but not until two months after operation in any of them; another patient was delivered of a dead child at seven months, but this was four and a half months after nephrectomy and death was clearly not due to the operation. The conclusion is therefore drawn that pregnant women stand nephrectomy well and that this operation for renal tuberculosis is not more serious for mother and child than nephrectomy because of other pathological conditions of the kidney during pregnancy.

[E. H. R.]

ARTERIOVENOUS ANEURISM

HOLMAN, E. (*Annals of Surgery*, Dec., 1924).

This author presents an article on this subject which is both experimental and clinical and has to do largely with the changes produced in heart and proximal vessels according to the size of the fistula produced, and draws the following conclusions:

"Clinically, the circulatory changes following the introduction of an arteriovenous fistula are dependent primarily upon the size of the fistula and upon an unobstructed return flow to the heart. Small fistulae, however long they may have existed, do not cause changes in either vessels or heart. Slightly larger fistulae may result in an enlargement of the proximal vein, but no visible change in the heart or proximal artery. Large fistulae are inevitably accompanied by changes in both artery and vein and usually by a demonstrable enlargement of the heart. The extent of these changes is intimately dependent upon the size of the fistula.

"These clinical observations are identical with those found in the experimental laboratory and are undoubtedly dependent entirely upon the amount of blood which finds its way through the fistula back to the heart."

[E. H. R.]

SIR THOMAS BROWNE

To the *Annals of Medical History* for Sept., 1924, Moschecowitz of New York contributes a hitherto unpublished letter of Sir Thomas Browne, which is reproduced in facsimile with transcription. In the December issue he publishes a fascinating study of the first editions of Sir Thomas Browne's writings, with seven reproductions of title-pages of *Religio Medici*, *Pseudodoxia Epidemica*, *Hydriotaphia*, *Miscellany Tracts*, and *Posthumous Works*. Of all the great English men of medicine, Sir Thomas Browne was perhaps the most remarkable, so far in advance of time that in some respects the world's thought has not caught up with him yet, any more than it has with Plato. Greater as a philosopher and man of letters than as a physician, he has left a small group of works which we may well admire and respect as a product of one of our profession.

[R. M. G.]

RESTORATION OF PANCREATIC ISLANDS

COPP and BARCLAY in Morristown (*Jour. Metab. Res.*, Sept.-Oct., 1923) show microphotographs, whence they conclude that the hydropic degeneration of the beta cells of the islands of Langerhans is reversible when the functional strain is relieved. The vacuolated cells recover normal form and granulation. As the development of the degeneration is slow, the recovery is also slow, requiring approximately two weeks for its completion. An incidental inference is that the cells must form their own secretion, and do not take up injected insulin from the blood for storage.

ALCOHOL IN MEDICINE

ROLLESTON, SIR HUMPHRY (*The Practitioner*, Oct., 1924) points out, in his article on alcohol in medicine, that in acute diseases the main value of alcohol is, in his mind, as a temporary remedy, for example, in a crisis of pneumonia or occasionally as a sedative to induce sleep. He finds that its justification as a food is in cases in which ordinary nourishment cannot be satisfactorily utilized; but points out that it must be remembered that, while alcohol is circulating and being oxidized in the blood, it can also produce toxic degeneration of the cells of the tissues. Its continuous use in prolonged fevers, such as enteric, is thus open to objection, and further, if pushed, it may produce other evil results, for example, hemorrhage. He advises that in cases of convalescence from acute disease, particularly in overworked and aging individuals, the addition of alcohol, brandy and whisky may make all the difference between distaste of meals and painful digestion. In sudden heart failure and threatened syncope the action of concentrated alcohol on the gastric mucous membrane may by reflex action rapidly and powerfully stimulate the heart. He also finds it is of value as a sedative, hypnotic or depressant, but points out to the rule already insisted on, alcohol should not be prescribed for continuous use.

[R. C.]

DISCUSSION ON ACUTE OSTEOMYELITIS

FRASER, JOHN (*The British Medical Journal*, Oct. 4, 1924) discussing the treatment of acute osteomyelitis, emphasizes the fact that in every case of osteomyelitis consideration must be given to the treatment of the general infection. In attempting to counteract the septicaemia it is his practice, as soon as a case of osteomyelitis of the ordinary staphylococcal type comes under observation, to begin vaccine treatment. A stock staphylococcal vaccine is used until an autogenous vaccine is available. An initial dose of 200 million is given, on the third day a dose of 400 million, and this is repeated on the fifth day. Thereafter the autogenous vaccine is brought into use and is given every fourth or fifth day.

In the especially acute septicaemic type of case and in the cases which have not responded to vaccine treatment he recommends and employs serum therapy. After a preliminary sensitization test he administers large doses of either a stock serum, a specially immunized serum, or, if neither of these is available, the ordinary horse serum. The drug is given daily in increasing doses, beginning with 10 c.cm. and reaching 100 c.cm.

The conditions which call for serum treatment he considers equally suitable for blood transfusion, and in young children particularly he favors this method. The value of blood transfusion in this connection is enhanced if it is modified by the combination of exsanguination with the transfusion. The most striking demonstration of the value of the method is seen in those cases of osteomyelitic septicaemia which persist in spite of the ordinary lines of treatment.

[R. C.]

GASTRIC MOBILITY AND SECRETION

HESS and FALTISCHKEK, from Chvostek's clinic in Vienna (*Wien. Klin. Woch.*, Oct. 30, Nov. 6, 1924), report their studies on the innervation of the stomach with reference to its motility and secretory function. They find that after the injection of Novocaine-Suprarenin solution at the level of the seventh and eighth thoracic segments there follows a notable increase of peristalsis and gastric acidity. These phenomena are of interest with reference to the relation of gastro-ptosis to disturbances of the secretory and motor functions of the stomach.

[R. M. G.]

EXOPTHALMIC GOITRE TREATED WITH INSULIN

LAWRENCE, R. D. (*British Medical Journal*, Oct. 25, 1924) reports upon four cases of Grave's disease treated with insulin, and summarizes his findings as follows:

1. Four severe cases of Grave's disease with hyperthyroidism were treated with large doses of insulin, 60 to 100 units a day. The insulin was well borne and causes no inconvenience.

2. Two of the cases were greatly improved, one being practically normal on discharge from the hospital. In both the disease was uncomplicated and of less than a year's duration in women under 30. It seems unlikely that their improvement was spontaneous or caused by any factor other than insulin.

3. The two others were not essentially benefited, although one gained much in weight and felt better. They were cases of toxic adenoma of the thyroid rather than of simple Grave's disease, occurring in women of about 50 and of over a year's duration.

4. The treatment was carried on under strict standard conditions of diet and close blood sugar control, but, should its value become established, these should hardly be necessary.

5. The subject is still in its experimental stage, and these four cases are recorded now mainly in the hope that other workers may investigate its possibilities.

[R. C.]

CARDIAC IRREGULARITIES

GRIFFITH, T. WARDROP (*The British Medical Journal*, Oct. 18, 1924) discusses at length cardiac irregularities, especially in reference to prognosis in treatment. In discussing extra-systoles he points out that in some cases they appear to be of no importance, but that they are more frequent in those who have cardiac valvular or muscular lesions and in those the subjects of increased blood pressure, that they may often persist in spite of treatment, that they may be associated with severe distress and that the patient cannot be reassured. In most cases, he points out, the prognosis depends more upon the conditions associated with the extra-systoles than with the actual irregularity itself, and that treatment will be dominated by the view he takes as to these. In cases where he finds no organic disease of the heart he usually advises as to careful living and the strict avoidance of anything approaching to invalidism.

[R. C.]

A CASE OF DUODENAL ULCER IN AN INFANT

THOMAS, AMY M. (*The Lancet*, Oct. 25, 1924) reports a case of duodenal ulcer in an infant. The child was a small wasted child, weighing 7 lb. 13 oz., with no obvious organic disease. He continued to be constipated and vomited slightly at times, generally after feeds, and had lost 5 oz. in weight by Nov. 6th. On the evening of the 8th he vomited bright blood-stained fluid and was collapsed. A stool seen at this time had some melaena-like staining. The next day he seemed well till evening, when he suddenly collapsed and died.

A punched-out ulcer was found in the first part of the duodenum, situated on the posterior wall about 1/4 inch from the pyloric sphincter. It was about 3/8 of an inch in diameter, irregular in shape, with slightly undermined edges. The floor consisted of submucous tissue on which could be seen a small vessel from which the bleeding had occurred. There was no thickening and very little evidence of inflammatory reaction of the surrounding structures and no peritonitis. Altered blood was present in the lower part of the ileum, and there was slight infection of the Peyer's patches, but otherwise nothing abnormal was found.

[R. C.]

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TIME AND ITS USES

Few men there are among the multitudes who can lay claim to possession of that rarest of human attributes, the ability to utilize the time at their disposal to its fullest advantage. Ability they may have in various ways and of high order, but unless they have also the capacity to fit the precious moments together they are leaky boilers that cannot push their steam against the pistons. Time is a curious commodity. It is immeasurable in its entirety, for it had no beginning and can have no end and yet it is naturally meted out to us with a precision that cannot be surpassed by any other quantitated thing.

Time, moreover, is the one commodity that is dealt to all with absolute justice. Water, air and sunlight, worldly riches and political equality come to us in different kind and in different measure, but each of us is given each day the same amount of time to spend; it is as if we each possessed the golden purse of Fortunatus or the miraculous pitcher of Philemon and Baucis. True, we cannot know or determine until the appointed hour what our total allotment is to be, but our daily wage in terms of time is no greater and no less than that of our fellows; the wisdom with which the wage is spent is the one great point of difference. Time

cannot be hoarded; it cannot be put out at interest; it cannot be given away. It must be spent, and whether it be spent wisely or wastefully is largely in our hands.

A definite apportionment of our time must be spent for what might be called, in economic nomenclature, maintenance. Time for sleeping and time for eating is generally given by the most niggardly. These are immediate necessities, and if we slight them Nature makes demands to know the reason why. Time for recreation, however, is a more distant, less urgent need of maintenance and one that may be neglected overlong before the machine makes known its wants. The motor that is short of fuel makes known its needs upon the instant, but lack of oil may not immediately affect its running, although its final results are far more disastrous.

It is in the use of our freer time, however, that most of us make our failures, and it is this failure that keeps our heads from rising above the common level. A little time for loafing, if it be well loafed, is the right of every man, and a recreation that may, and should, be well earned. There are, however, many crannies in our day's occupation, and this is apt to apply with especial emphasis to our profession, that should be chinked to our advantage. Sir William Osler was a very busy teacher and practitioner and yet in this busy life he found spare moments in which to employ his mind and pen. It is a by-word that the busiest man is he who always has time to do what is asked of him. Such a man has learned to spend his time. For the man who is willing to use them, employment for his spare moments can always be found, and he will soon realize that he is an abler man for having used them to some purpose. Reading, and for some writing; special studies; investigative work; public service of one type or another are activities for which the physician, the representative of an intellectual group, is peculiarly fitted. Weir Mitchell was a practitioner, Holmes was an anatomist, Mumford, a surgeon, was also an essayist. These men were intellectually eager. They kept the gardens of their minds weeded, and practised intensive cultivation.

Some men, when not working at routine, will close their minds like books. Like steamship captains they will signal "Finished with the Engines" and let a dynamo become inert. For them there are no Elysian fields of intellectual pastime, no exaltation in thought of knowledge gained or service rendered. They work and they cease working; there is no eager turning to new fields to browse in. They do not think while smoking; they simply smoke, like cloud-compelling Jupiters, as Dean Briggs has characterized one class of undergraduates. Such of us may dream, but we do not wake and carry out our dreams.

THE REORGANIZATION BILL

THE Bill before Congress, S. 3445, which has been referred to in the *Journal of the American Medical Association*, is regarded by many persons concerned in public health to be pernicious. The important feature reflects the attitude of many men in public life who have no adequate understanding of the public health problems of the country.

Although the administration of national public health measures has not been satisfactory in many ways, there is no reason at this time to make the Public Health Service a football to be kicked about from one department to another. The present conditions could be improved through more definite concentration of health activities which now are scattered through many departments or bureaus.

If the government would appoint a commission consisting of persons who are competent to take a broadminded view of our public health problems for the purpose of presenting plans for the creation of a department which would have supervision and so far as may be found desirable more or less control over all health activities other than those of the Army and Navy, it is probable that some plan could be devised which would meet with general approval. Until some reorganization scheme can be worked out the Public Health Service had better stay where it is.

Protests from medical societies, other organized bodies and prominent citizens may have some influence. Physicians should write to the Senators and Representatives protesting against the bill sponsored by Senator Smoot.

ULTRA-VIOLET RADIATION AND SCURVY

JANET H. CLARK of the School of Hygiene and Public Health of Johns Hopkins University has recently reported some interesting experiments on the treatment of scurvy by means of ultra-violet lamp. (*Science*, Jan. 9, 1925.)

Lind, in 1757, writing on scurvy, noted that scurvy is more prevalent in northern than in southern latitudes, and that when it occurs in southern latitudes it is usually during the rainy season and is improved by change of weather. It was observed that Turkish wounded, suffering from scurvy in the winter of 1915, were improved by exposure to sunlight.

Clark carried on three controlled experiments with groups of guinea pigs, producing scurvy by withholding foods containing the antiscorbutic vitamin, and radiating daily over a depilated area with an Alpine Sun quartz mercury arc. Not only was ultra-violet radiation found to be entirely ineffectual in preventing or postponing scurvy, but, except in three cases where a diet lacking only in the antiscorbutic vitamin was used, it actually hastened loss of weight

and death and prevented recovery after orange and cabbage were added to the diet.

So much of curative value has been claimed for the ultra-violet ray that it is interesting to learn of its shortcomings. Fortunately the antiscorbutic vitamin is distributed so abundantly through nature that no human being, infant or adult, need acquire scurvy.

MAINTAINING A STATIONARY POPULATION

THEORETICALLY, in order to maintain a stationary population, according to Louis I. Dublin, statistician of the Metropolitan Life Insurance Company (*Statistical Bulletin*, Vol. 5, Dec., 1924), every female must marry, and every married couple must have one son and one daughter. Actually, because only 788 of every thousand females and only 742 of every thousand males survive and marry, and because practically one out of every six marriages is sterile, each union should result in 3.1 children in order to maintain this balance.

Immigration has in the past been responsible for our high birth rates, and immigration has been severely checked recently by Federal legislation, probably with the idea in mind that the future American people should come more and more from the older American stock rather than from the newer strain. However, the native stock does not maintain the birth rate necessary for its replacement. The drift has been for such stock from the country towards the city, and city life is noted for its decreased fertility. At the present rate our native American stock is doomed eventually to die out.

MISCELLANY

Louisiana Joins States Demanding Certificate of Health Before Marriage

LOUISIANA has joined the ranks of States requiring a physical examination and a clean bill of health as a pre-requisite to the issuance of a marriage license. At the last session of the legislature, the law-makers passed the Ducros Bill making it compulsory for any male applying for a marriage license to obtain from a licensed physician a certificate showing that he is free of venereal or other constitutional disease.

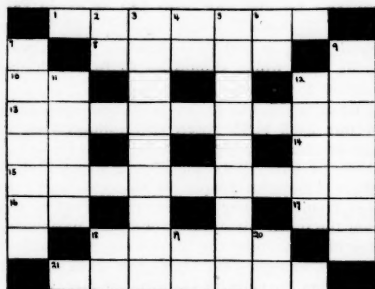
According to the Division of Venereal Diseases of the United States Public Health Service, such legislation has steadily gained favor since the war inasmuch as it is a distinct measure to prevent infection of innocent wives and unborn children. The incidence of congenital syphilis and of infant blindness due to gonorrhea is responsible for the enactment of such laws to prevent venereal diseases. Several States have

adopted laws similar to the Louisiana bill. One State requires the prospective groom only to state that he is free from disease. Another stipulates that a certificate of health is necessary only when the applicant has been previously infected with a venereal disease, while the laws of a few States are identical with the Ducros Bill.

North Carolina, Oklahoma, Pennsylvania, Indiana, Michigan, Oregon, Alabama and Utah are among the States requiring a physical examination of the male and a certificate of health precedent to the securing of a license to marry.—*United States Public Health Service.*

A STORMY CONVALESCENCE

(Owing to an error in composition the puzzle was incorrectly printed last week and is being repeated for the benefit of our fans.)



HORIZONTAL

1. The Greek word for "plug."
8. An aphrodisiac.
9. A symbol for myopic astigmatism.
12. A suffix signifying "capable of."
13. Tendency to putrefaction.
14. A suffix signifying "pertaining to."
15. An agent that destroys mites.
16. The Egyptian sun god.
17. A suffix forming the comparative degree.
18. Soil.
21. Latin for "bath."

VERTICAL

2. The author's product.
3. Pertaining to schizomycetes.
4. A chemical suffix.
5. The bane of bacteria.
6. A famous university (abbr.).
7. The useful laxative.
9. A combining form for glycerin.
11. An Oriental balsam.
12. To happen (obs.).
18. A Babylonian deity, the healer of the sick.
19. Registered nurse (abbr.).
20. A man's name (abbr.).

(Solution will appear in next week's issue.)

General Practitioners and Specialists

PRESIDENT KINLEY of the University of Illinois a few weeks ago met the students of the medical college, about 460 in all, and it is reported that

he asked them how many intended to become general practitioners of medicine. Thirty raised their hands and one of the thirty answered, "We are all taught to eventually be specialists." The President then asked how many were reasonably well satisfied with the training they were getting at the college. *Less than thirty raised their hands.*

It is understood that the reason for this is that the idea has been so inculcated in the minds of the students that in order to practice medicine a doctor must have at his disposal, not only complete laboratory and hospital facilities, but also research facilities.—*Illinois Medical Journal, Feb., 1925.*

Address at Harvard Medical School

DR. EDWIN ST. JOHN WARD, F.A.C.S., Dean of Medicine, American University of Beirut, Syria, addressed a gathering of students at the Harvard Medical School on Wednesday, February 18th. He spoke on the Red Cross Work in which he was engaged during the war and also on Medical Education in the Near East. He showed a number of lantern slides illustrating the University and its work. The institution has an enrolment of twelve hundred students, with one hundred in the Medical Department. Students of many nationalities and religions pursue their college and professional training together. The great need in the school at the present time is for well trained teachers in medical subjects as well as in others.

Dr. Ward's address was given under the auspices of the Medical School Committee of the Phillips Brooks House Association.

Abstract of Inaugural Address of Dr. Samuel J. Kopetzky on Taking Office as President of The Medical Society of the County of New York

DELIVERED IN NEW YORK CITY ON MONDAY,
JANUARY 26, 1925

The physician as an individual has long enjoyed a high place in public esteem—respected for his skill, loved for his charities and trusted for the self-evident unselfishness daily manifested in his contact with those about him.

Not only this, but he has been friend and counsellor in great numbers of households in many intimate matters not connected with the healing art but where his high personal character was felt to give him eminent qualifications as an impartial and competent advisor.

Singularly enough, however, it has been a fact that nothing like this degree of confidence has been given to these same physicians when banded together. Too often there was suspicion and mistrust—originating, in all probability, in a general belief in the existence of a spirit of self-interest as ordinarily controlling the acts of men gathered in an association.

It therefore becomes a welcome duty on my part to define and explain the true relationship of the members of such an organization as the Medical Society of the County of New York to the community at large.

The duties of this Society are, broadly speaking, threefold: First, they are educational; second, they are political, in the sense of making proper effort to assist in bringing to pass legislation beneficially affecting public health and preventing the passage of laws capable of being used to the detriment of public health; third, they are to give intelligent and helpful coöperation to the work of other professions that are allied to that of medicine.

New discoveries in medicine should be reported to the public by a medical organization such as this. Supposed cures should not be allowed to be disseminated, distorted by ignorance and magnified by self-interest through the greed of quackery or through any other unworthy motive.

We should furnish the press, the radio and other worthy publicity agencies with bonafide news, in the confident expectation that they, on their side, will coöperate with us to the end that all medical news published shall be authentic and trustworthy, and thus beneficial to the people.

It seems clear to me that there is a very definite obligation along this line on the part of those who control publicity channels, and I am glad to express my belief that this is being more and more manifestly observed by those who control our great newspapers and other avenues of public information.

Whatever may be the latitude that the law allows, there certainly is a distinct moral responsibility resting upon all those who have access to the public eye and ear, in whatever manner, to lend their agencies to educational programs for the betterment of community health, and to refuse to spread the pretensions of the advertising quack or the vagaries of deluded enthusiasts.

There is great need for the authoritative instruction of the public in the field of preventive medicine. This has rightly made a very strong appeal to the imagination of the people, and it is equally the role of this Society, and of the various publicity mediums of which I have already spoken, to see that none but the proper seeds fall upon the receptive soil of public interest.

The Medical Society of the County of New York was one of the pioneer medical organizations to recognize this; and, in conformity with the view that it is easier and better to stay well than to get well, it has instituted extensive machinery to enable the doctor to perform, and the entire public to receive, a health examination periodically.

It is our purpose to make the physician more alert to recognize early signs of disease, and to

educate the public not to wait until sickness actually comes, but to look for advice, at regular intervals, on how to remain well.

Our task has been made easier by the fact that the community is becoming more and more alive to its share of the obligation in this connection; and much valuable aid is being given to our program by such lay agencies as the New York Tuberculosis Association, the Milbank Foundation, and the Committee for Health Service Among Jews.

Still another important duty of ours is to expose quackery within and without the medical profession. Many persons believe that such organizations as ours oppose irregular medical practice for economic reasons. This idea is exceedingly superficial. Charlatanism does not menace the physician, nor does its presence lessen the number of patients that physicians are called upon to treat.

The real danger is for the sick and the ailing. The victim of the quack eventually reaches the physician; and when he does, it is usually with a condition which has arrived at the chronic stage and which requires prolonged treatment for a cure—even if a cure be possible at all.

Inasmuch, however, as even the intelligent person is rarely able to detect the falsity of the pseudo-scientific claims made by various cults, this Society, and all others like it, must expose the fads and "isms" which arise—and do this not by arbitrary denunciation but through a clear analysis of their fallacies.

Where, as in physical culture and various dietary fads, there is some element of truth in the cult's theory, it should be defined and its limitations explained. Many people would be saved from exploitation by quacks if they were made to realize the down-right absurdities, frauds, and half-truths on which these irregular systems rest.

Coming now to the proper political activities of our Society, it is of course proper for me to point out that it is a primary obligation upon our legislators, regardless of party, to do all that they can to promote the preservation of the health of the people.

Where may they more properly turn for advice on so important a matter than to the organized medical profession? The County Medical Society has no paid lobbies. It does not engage in legislative trading of any kind. But it has, in its Committee on Legislation, a group of vigilant, far-sighted physicians who analyze every measure introduced into the Legislature that has any bearing whatever upon the practice of healing.

Endorsement is given to those bills that will promote health and defend the people against the depredations of chicanery. Similarly, legislation is opposed when designed to admit untrained and unqualified men to the care of the sick or to hamper the advancement of medical knowledge.

Despite the costliness and duration of the medical course, physicians have consistently supported laws framed to increase their scientific equipment. Likewise, when a law was proposed at Albany last year to strengthen and enforce the Medical Practice Act, although it entailed a certain irksome and unpopular feature for the profession, the majority of the organized physicians of the State were prepared to accept it for the general good. This is the right spirit.

Hand in hand with law enactment is law enforcement, and I say to you that the Medical Practice Act, while seemingly foolproof, is in reality enforced with great laxity; and it is only when an extremely sensational instance of the dangers of irregular practice comes to light—as with the Connecticut diploma mill exposure or the death from diphtheria of a child who was treated by chiropractic instead of the administration of antitoxin—that there is a spasmodic flurry of enforcement.

This Society exacts the highest scientific standards from its members and it has a right to expect the community to demand the prosecution of quacks and of unlicensed practitioners of various cults.

Such allied professions as pharmacy, dentistry and nursing work in so close a relationship with medicine that anything that lowers the efficiency of their operation is bound to react upon our own efforts.

One instance of the aid that medicine can be to these associated professions may be found in the recent legislative activity against what we have termed the "bootleg" drug stores. Following the closure of the saloons, a number of bartenders transferred their activities to drug stores, which they ran as a shield for their bootlegging. The reputable pharmacists, alarmed at the aspect their profession was thus given, sought legislative relief, which, with the help of the medical organizations, was obtained.

With regard to nursing, a very difficult situation has arisen which it is essential that this Society should attempt to solve. A type of nurse has been evolved which, while very valuable in public health work, is becoming more and more unsuited to the bedside tasks that are essential features of her profession. Drawn from the better educated classes, the nurse of today is unwilling to perform the more menial tasks that are assigned to her, and frequently, when stationed in a home where there is sickness, requires for herself a service and attention that are an additional burden to a family already disrupted by illness.

The best equipment for the nurse, outside of the simple technical and anatomical knowledge that must necessarily be part of her training, is a cheerful desire to serve, a tactful sympathy, and the ability and willingness to carry out the doctor's orders implicitly.

Several instances have come before this Society wherein supposedly reliable registries have sent out women who were personally totally unfit to assume the responsibility devolving upon a nurse.

Cases like these are due to the failure of the registries to investigate properly the applicants for positions, and one result is to discredit a profession that actually has an exceedingly high personal average.

We propose to work out an arrangement whereby this Society can exercise some supervision over the nursing registries analogous to its position in the matter of certified milk and commercial laboratories—to the benefit not only of the public but of the nursing profession as a whole.

In bringing to pass the result that I have endeavored to point out, much can be done through the regular machinery of this Society—through its administrative bodies, through its counsel and through *The New York Medical Week*, its official organ. Likewise, coöperation with other organizations is needed and with the press, the radio, the moving picture and all other agencies for public information whose operations can be effectively supplemented by the expert knowledge that this Society is prepared to bring to bear in checking cheap sensationalism and in supplying, in its place, medical information of reliability and therefore of important public usefulness.

Appointment

DR. IRVING SAMUEL CUTTER, Dean of the College of Medicine of the University of Nebraska, has been appointed Dean of the Medical School of Northwestern to succeed Dr. Arthur I. Kendall who resigned at the close of the last school year to accept an appointment as Professor of Bacteriology and Public Health at Washington University Medical School. Dean Cutter will assume his new duties at the close of the school year in June after ten years of service at the University of Nebraska.

REMOVAL

DR. MOSES J. STONE has resigned from the Westfield State Sanatorium and has opened an office at 108 Columbia Road, Dorchester, Mass.

CORRESPONDENCE

CHARLES READE ON FACE POWDER

Mr. Editor:

Those who have not followed the varying fortunes and exciting incidents in the life of Dr. Christopher Staines (Charles Reade's "A Simpleton") have missed much.

Though this was written some 60 years ago, Dr. Staines' remarks sound like a talk by a present-day dermatologist. Most of Dr. Staines' troubles came through his wife, a very pretty and inconsequential young woman, much given to society.

"One afternoon Mrs. Lucas called for Mrs. Staines to drive in the Park, but did not come upstairs; it was an engagement, and she knew Mrs. Staines would be ready or nearly. Mrs. Staines, not to keep her waiting, came down rather hastily, and in the very passage whipped out of her pocket a little glass, and a little powder puff, and puffed her face all over in a trice. She was then going out, but her husband called her into the study. 'Rosa, my dear,' said he, 'you were going out with a dirty face.' 'Oh,' cried she, 'give me the glass.'

"There is no need of that. All you want is a basin and some nice rain water. I keep a little reservoir of it."

"He then handed her the same, with great politeness. She looked in his eye and saw he was not to be trifled with. She complied like a lamb, and the heavenly color and velvet gloss were admirable. He kissed her and said, 'Ah, now you are my Rosa again. Oblige me by handing over that powder-puff to me.' She looked vexed, but complied. 'When you come back I will tell you why.'

"You are a pest," said Mrs. Staines, and so joined her friend, rosy with rain water and a rub.

"Dear me, how handsome you look today," was Miss Lucas' first remark. Rosa never dreamed that rain water and rub could be the cause of her looking so well.

"It is my tiresome husband," said she. "He objects to powder and he has taken away my puff." . . . She came back irritated with her husband, and gave him a short answer or two. Then he asked her what was the matter.

"You treat me like a child—taking away my very puff."

"I treat you like a beautiful flower, that no bad gardener shall wither whilst I am here."

"What nonsense! How could that wither me? It is only violet powder—what they put on babies."

"And who are the Herods that put it on babies?"

"Their own mothers, that love them ten times more than the fathers do."

"And kill a hundred of them for the one a man ever kills."

"Mothers—the most wholesale homicides in the nation."

"We will examine your violet powder, bring it down here."

"While she was gone he sent for a breakfast-cupful of flour and when she came back he had his scales out, and begged her to put a teaspoonful of flour into one scale, and of violet powder into another. The flour kicked the beam, as Homer expresses himself.

"Put another spoonful of flour."

"The one spoonful of violet powder outweighed the two of flour."

"Now," said Staines, "does not that show you the presence of a mineral in your vegetable powder? I suppose they tell you it is made of white violets dried, and triturated in a diamond mill. Let us find out what metal it is. We need not go very deep into chemistry for that." He then applied a simple test and detected the presence of lead in large quantities. Then he lectured her: 'Invisible perspiration is a process of nature necessary to health and to life. The skin is made porous for that purpose. You can kill anybody in an hour or two by closing the pores. A little boy was killed in two hours by gilding him to adorn a pageant, according to Roman history. But what is death to the whole body must be injurious

to a part. What madness, then, to clog the pores of so large and important a surface as the face, and check the invisible perspiration! How much more to insert lead into your system every day of your life, a cumulative poison, and one so deadly and so subtle that the Sheffield file cutters die in their prime from merely hammering on a leaden anvil. And what do you gain by your suicidal habit? No plum has a sweeter bloom or more delicious texture than the skin of your young face, but this mineral filth hides that delicate texture and substitutes a dry, uniform appearance more like a certain kind of leprous than health.

"Nature made your face the rival of peaches, roses, lilies, and you say, 'No, I know better than my Creator and my God. My face shall be like a dusty miller's!'" Go into any flour mill, and there you shall see men with faces exactly like your friend Miss Lucas. But before a miller goes to his sweetheart he always washes his face.

"You ladies will never get a miller down to your level in brains. It is a miller's dirty face our monomaniacs of women imitate, not the face a miller goes a-courting with."

The modern young woman and the "flapper" of today could take Dr. Staines' advice to his wife Rosa with equal benefit.

Very truly yours,

WM. PEARCE COUES, M.D.

12 Monmouth Court, Brookline, Mass.,
December 14, 1924.

NOTE—Figures of the Census Bureau show that the United States spent considerably more than \$117,175,741 for perfumes, cosmetics and toilet preparations in the year 1923.

THE TREATMENT OF RABIES

Pathological Laboratory,
City Hospital, Worcester, Mass.,
February 8, 1925.

Editor, Boston Medical and Surgical Journal:

In view of the frequency of dog bites and the number of positive cases of rabies amongst the dogs which have done the biting, it seems an opportune moment for physicians to brush up on the subject of rabies and particularly on the technique of treating the wounds, all of which must be considered as potentially infected by rabies virus. Most of the cases occurring in Worcester have been referred to me for immunization, and much variation in methods of "cauterization" of the wounds has been in evidence. Iodine is most commonly used, but, in the opinion of the New York Health Department, is not adequate.

I think it would be in the interest of both patients and physicians if you could find space to publish as much of the data given in the enclosed circular as possible.

Very truly yours,

ERNEST L. HUNT.

EXCERPTS FROM THE BULLETIN OF THE DEPARTMENT OF HEALTH, NEW YORK CITY

The Pasteur treatment is a preventive treatment against rabies. It is not curative and is of no value after rabies has developed. The course consists of 21 daily injections of anti-rabic virus. This material (rabies vaccine) is a virus vaccine, not a serum. As it deteriorates rather rapidly, each dose is prepared daily and sent by special delivery mail.

Cases Bitten on Face, Head or Neck—The data are essential. Bites on the face, head or neck increase the dangers of infection on account of the many nerves in these localities and the close proximity of

the brain; the treatment in these cases is an intensive one. Such cases especially should not only begin treatment promptly but any irregularity in the course of injection should be most carefully avoided. For this reason we advise that severely bitten patients be sent, if possible, to New York City, or other place where the vaccine is prepared, in order to avoid any delays due to irregularities in the mail.

Second Course of Treatment.—In extremely severe face, head or neck bites, a second course of treatment is advised. This second course should be started two weeks after the last dose of the first course.

Cauterization.—Prompt cauterization of the wound should not be neglected. The earlier it is done, the more effective it is. *Fuming nitric acid* is the best cautery and is helpful if used within 48 hours of the bite. The acid should be applied on the point of a tapered glass rod or drop by drop from a capillary pipette, so that the amount may be carefully controlled. Contact with bony, cartilaginous or bloodless parts should be avoided if possible. To these parts apply pure carbolic acid, and the fuming nitric acid to the other tissues adjacent. Such tissues heal well after the use of nitric acid.

The actual cautery is effective as far as it reaches the parts of a wound, but fuming nitric acid, being a fluid, reaches the deep crevices which the hot iron may not touch.

The use of pure carbolic acid, iodine, silver nitrate, etc., on wounds made by rabid animals have but little value as compared with fuming nitric acid.

Do not suture wounds made by rabid animals.

Possible Dangers of Taking Treatment.—In the vast majority of instances the Pasteur anti-rabic treatment is neither accompanied nor followed by any complications of importance. The slight pain of the injections, some degree of local or constitutional reaction, occasionally a fairly marked urticaria, and possibly a localized abscess if the physician is careless in sterilizing his syringe, are all the discomforts that are likely to be encountered.

There is one rare complication, however, the so-called "treatment paralysis," of which the true nature and cause are not fully understood. The symptoms vary from a slight degree of neuritis with little or no motor involvements to an acute ascending paralysis which may be fatal. The parts of the body most commonly involved are the legs, sphincters, arms and face; the centers under medullary control, as the respiratory and cardiac, and the functions of swallowing and phonation may also be affected.

This paralysis occurs very rarely (about 1 in 2500 treated cases) and affects chiefly adults, but young children almost never. Alcoholism, nephritis, exposure to cold, either by cold bath or cold weather conditions, and fatigue are predisposing factors; also any idiosyncrasy of the patient.

The prognosis is good in the mild or moderate cases of paralysis, but among the severe paralysis cases the mortality is high. However, the total mortality in all cases treated is less than 1 in 10,000. Since the incidence of any paralysis at all is very slight, only 0.04 per cent., the bare possibility of its occurrence should not deter those who need anti-rabic treatment from taking the course of injections.

On the other hand, those patients who are inclined to insist on taking rabies vaccine unnecessarily (that is, in the absence of clinical or laboratory evidence that the biting animal was rabid) should have the slight risk of paralysis explained to them.

ANTI-RABIC TREATMENT SHOULD BE GIVEN:

To persons bitten by animals which have been proven rabid either by clinical symptoms or by microscopic examination of the brain.

To persons whose hands or face have been contaminated with saliva of a rabid animal without being bitten. This is because of the possible presence of cracks, hang-nails or other small open wounds.

To persons bitten by stray dogs which cannot be located. The treatment is given as a precautionary measure.

To persons bitten, pending the laboratory diagnosis on the brain of the biting animal, provided that the symptoms or actions of the animal were suspicious.

Routine to Be Followed in Regard to Biting Dog.—A dog which shows clinical symptoms suspicious of rabies should be killed at once and the brain sent to a laboratory for diagnosis. If an apparently normal dog bites anyone it should be kept under observation for ten days to three weeks. The saliva of the dog may be infective on an average of three or four days before the animal shows clinical symptoms. The longest time that a dog with symptoms of rabies lives is usually five or six days. This period, added to the three or four days above, makes a period of about nine or ten days, at least, during which the animal should be under close observation and confinement. Since, however, a prolonged incubation period may occur, it is safer to hold the animal for three weeks. Such animals should not be killed too soon for the reason that a satisfactory laboratory examination of the brain cannot always be made in the early stages of the disease. The microscopic evidence of rabies (the Negri bodies) appears but little earlier than the clinical symptoms. When this evidence in the brain is lacking a part of the brain must be injected into test animals. This test requires from two to four weeks for completion.

FACTS ABOUT RABIES

Incidence.—About 16 per cent. of the human beings develop rabies if not treated after a bite by a rabid animal. Anti-rabic treatment has reduced this figure to 0.5 per cent.

Period of Incubation.—In human beings the shortest known time is 14 days; the longest, seven months (possibly one year). The average time is 20 to 60 days. The period of time depends on the quantity of virus introduced, the point bitten and the strength of the virus.

Bites through several layers of clothing are not so dangerous as those on the bare skin. Since the infection travels along the nerve routes, bites about the face, head or neck are more serious because of their location near the brain and the many nerves present; so also bites involving the large nerve trunks. In such cases the period of incubation is apt to be short.

The saliva of a human being who has developed rabies is not so dangerous as that of the dog; neither is the saliva of a herbivorous animal so dangerous. Nevertheless, all the precautions as to cauterization and treatment should be taken if exposure has occurred.

The period of incubation in a dog which has been infected is usually 14 days or less. Since, however, this period is sometimes prolonged, the animal should be held in quarantine at least six to 12 months.

Immunity.—The Pasteur treatment requires four to five weeks for the full development of immunity. Three weeks of this time are required for the injections. In a person who is taking the treatment there is a contest of speed between the passage of the virus from the wound to the brain, by way of the nerves, and the development of immunity due to the absorption of the vaccine through the circulatory system. This immunity lasts, apparently, a variable length of time.

The treatment is considered as having failed to protect only when the patient dies two weeks or more after the end of the course of injections. In those cases in which death occurs within the two-week period there may have been unusual susceptibility or marked intensity of the infecting virus. Delay in starting treatment may be responsible for a failure in protection.

NEWS ITEM

Announcement

DR. PERCY B. DAVIDSON announces the opening of his office at 483 Beacon Street, Boston.

REPORTS AND NOTICES OF MEETINGS

Norfolk South District Medical Society Meeting for Medical Improvement

NORFOLK COUNTY HOSPITAL, South Braintree, Thursday, March 5, 1925, 12:00 noon. Speaker: Doctor Bronson Crothers. Subject: Responsibility of the Obstetrician for the Prevention or Early Treatment of Birth Injuries of the Nervous System.

C. A. SULLIVAN, M.D., *Pres.*
South Braintree
N. R. PILLSBURY, M.D., *Secy.*
South Braintree.

New England Pediatric Society

THE ninetieth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, March 13, 1925, at 8:15 P. M.

The following papers will be read:

1. Mental Growth and Developmental Diagnoses in Infancy, Arnold Gesell, M. D., New Haven, Conn.

2. Children's Personality and Behavior, E. Stanley Abbot, M. D., Boston.

Light refreshments will be held after the meeting.

KENNETH D. BLACKFAN, M. D., *President.*
JOSEPH GARLAND, M. D., *Secretary.*

Harvard Medical Society

THE next regular meeting of the Harvard Medical Society will be held as usual in the amphitheatre of the Peter Bent Brigham Hospital, Mar. 10, 1925, at 8:15 P. M. The program follows:—

1. Demonstration of cases.

2. The Pathology of Deficiency Diseases. Drs. S. B. Wolbach and Percy Howe.

All members of the Medical Profession, Medical Students and Nurses are invited.

Medical Reserve Officers

ON March 18th, 1925, the meeting of the Medical Reserve Officers at 8 Fenway will be particularly interesting.

We have as speakers on that evening Colonel William E. Horton, Q. M. C., U. S. A., who will speak to us on the subject:—The Quartermaster service, in reference to the Medical Department, and Colonel Fred E. Buchan, Cav., U. S. A., Chief of Staff, XI Corps, U. S. A., who will speak to us concerning the Liaison be-

tween the Line and the Medical Department, and Captain Frank A. Sullivan, M. A. O. R. C., 109 Allen Street, Springfield, Mass., who will take up the Medical Supply Service & Depots, and Captain H. N. Dean, M. A. C., U. S. A., who will speak on the Medical Administrative Corps.

These meetings are not confined to men holding commissions in the Reserves but every Doctor, every Dentist and every Veterinarian who desire are cordially invited to attend.

At the last meeting of the Medical Reserve Officers on March 4th, 1925, one of the most interesting programs of the Winter session was presented. Corps Problem was continued and The Hospital Center, by Col. Joseph H. Ford, M. C., U. S. A., Corps Surgeon, 1st Corps Area, and the Veterinary Service, by Lt. Col. J. H. Uri, V. C., U. S. A., Hospital Trains and Regulating Stations, by Capt. Louis F. Salerno, Med. O. R. C., and Collecting Stations of Corps Problem, by Major Roger Schofield, Med. O. R. C., 80 Apriest St., Worcester, Mass., and As Acting Division Surgeon, 76th Division, of the Corps Problem, by Major Henry M. Emmons, Med. O. R. C., 320 Commonwealth Avenue, Boston, Mass.

Institute for Nurses

THE Institute for Nurses under the auspices of the Massachusetts State League of Nursing Education will be held on March 5 at the Evans Memorial Building of the Massachusetts Homeopathic Hospital, 82 East Concord St., and on March 6-7 at Chauncey Hall, 585 Boylston St.

Boston Medical History Club

Minutes of the Meeting of February 16, 1925

DR. CHARLES F. PAINTER read a paper on "Time: The Evolution of its Measurements." He said in part:

Methods of measuring time are such matters of course that we think little of their origin or the reason for their gradual perfections. Compared with other achievements, such as the telephone, the steam engine, etc., the chronometer has played quite as important a rôle as they in advancing civilization. Beginning with instruments which utilized the height of shadows cast by the sun from perpendicular columns, up through the crude observations of the movements of the heavenly bodies to the fore-runner of the earliest type of clock operated by weight and pulley, viz.: the water clock or clepsydra, a period of from 1200 to 3000 years was covered, for the Chinese are said to have used water clocks 2500 years B. C. and sun dials

were first employed by the Babylonians from 600-700 years before the Christian era. It is only from a study of the association of early nations as reflected in their commercial relations and the history of their wars of conquest that one is able to form some conjectures as to the origin and development of the various time measuring instruments culminating in the modern chronometer. Persians, Greeks, Romans, Chinese, Indians, Assyrians, Arabs, and Egyptians figure prominently among the contributors to the art of measuring time. The refinements which have been from time to time added to existing methods have pretty definitely kept pace with the importance which attached to instruments enabled men to meet, with promptness and accuracy, their business engagements may therefore be regarded as a fairly good index of the progress of civilization. In other fields of evolution the significance of time-measuring instruments have played a very important part. Without such instruments what would Geology or Paleontology, Astronomy or Biology convey to us as compared with the knowledge we now possess? We are said to be living "in an age of seconds." The reason that such a remark could be made is that such minute divisions of time have a commercial value, and we must needs make provision for their measurements for this is preëminently a commercial age.

Dr. Joseph H. Pratt read a paper on, "Osler and Tuberculosis." Osler had particular interest in tuberculosis and it formed one of his major subjects in the study of medicine. Its various aspects, pathological and clinical, engaged much of his thought from the beginning to the end of his life in the profession he loved so well. The earliest reference to it in his papers is 1870. In the Fall of 1919, nearly fifty years later, he was planning an address upon tuberculosis, a few weeks before he died. His knowledge of the manifold aspects of tuberculosis and his many contributions that threw light on the dark places and advanced science were simply the inevitable results of his "way of life," an eloquent testimonial of the value of the "master word in medicine"—work. As we read his many papers we see that he was content to "observe, record, tabulate, and communicate." He was content all his life to do "the task that lies close at hand." There was a gradual widening in the scope of his work. In Montreal and Philadelphia he dealt chiefly with the pathological aspects of tuberculosis, while in Baltimore and Oxford his studies were largely clinical and social.

Dr. Pratt then gave in some detail Osler's interest in social measure for combating the disease. He secured funds and made additions from his own purse especially for clinical studies. He was influential in establishing the first rudimentary dispensary in Baltimore in 1898. He was president and an active member of many tuberculosis societies.

Dr. Osler during the Montreal period spent a large amount of time in the study and teaching of gross pathological anatomy. One of his earliest studies was on the pathology of miner's lung. All his later clinical knowledge was based on the solid rock of pathological anatomy. His work and career was founded, as Dr. Welch pointed out, on the study of natural history. His mind was that of a naturalist. He was interested in accurate records of observed facts, not of hypotheses. He had the instincts of a collector and developed them along the highest lines.

Not until Osler began his career at the Johns Hopkins Hospital did his published studies deal with the clinical aspects of tuberculosis. These papers were written with the same accuracy and fulness as the pathological reports in his earlier works. He worked up his cases in great detail and collected similar reports from the literature. He added greatly to our knowledge of tuberculous peritonitis and classified the different types of abdominal tumors due to tuberculous disease of the peritoneum. Tuberculosis of the serous membranes interested him especially. He was one of the first in America to recognize the tuberculous origin of pleurisy with effusion. He later became interested in tuberculosis in children and wrote important monographs on that subject. The fine points of percussion and auscultation of the lungs did not interest him.

Dr. Pratt then spoke of Osler's views on treatment. It was Edward L. Trudeau who apparently convinced Osler of the value of fresh air and sunshine, in the healing of tuberculosis. Dr. Osler later became interested in the home treatment of tuberculosis and in 1899 described in great detail the shocking conditions in some of the homes of Baltimore where he found tuberculosis. He later became interested in educational and public health activities, urged a campaign of education for the public, the medical profession, and the patient. He felt that every general hospital should admit tuberculosis cases to educate the doctors, students and nurses in the proper treatment. In England Dr. Osler actively supported the tuberculosis crusade and made addresses on this subject.

Dr. Osler moreover had a profound influence on the study of tuberculosis and the education of doctors in this country. His beautiful tribute to Edward L. Trudeau should not be allowed to remain in its ephemeral form—the pages of a monthly magazine. His crisp epigrammatic notes of encouragement brought joy and gladness to the hearts of tuberculosis workers everywhere. No one can estimate, not even the men themselves, the importance of Osler's influence on the development of Lawrason Brown, Charles D. Parfitt, Louis Hamman, and others.

Dr. Osler honored and admired physicians of

the great past who had made possible the modern knowledge of tuberculosis. He published an historical sketch of that English worthy, Richard Morton, who was one of the first to give a good account of the symptoms of consumption and to appreciate fully the contagious nature of tuberculosis. His students were repeatedly advised to read Laennec. Among the treasures he collected was a manuscript by Laennec. Upon acquiring the original copy of Dr. Bodington's essay, for which he had long been looking, he wrote a sketch of that pioneer of open air treatment.

Dr. Edward O. Otis said he remembered Osler at many tuberculosis meetings, especially at Rome in 1912 and at Atlantic City, when the formation of the National Association for the Study and Prevention of Tuberculosis was discussed. Trudeau was later elected its first president.

Meeting adjourned at 10:30.

Secretary.

Third International Congress of Military Medicine and Pharmacy Will Be Held in Paris, France, April 20th to 25th, 1925

THIS Congress follows the work started by the Inter-Allied Surgical Conferences, which functioned during the War, in which general rules were formulated for the treatment of all cases.

The Belgian Army Medical Corps, thinking that this fruitful scientific collaboration should be continued in peace-time, took the initiative and in 1921 called all the Medical people concerned with the War on the allied side, to a conference in Belgium, under the auspices of H. M. the King of Belgium. Then was organized the above Congress. There were 20 nations represented at the first conference, held at Brussels, and at Rome, in 1923, there were 35 nations represented.

The honor of holding this Congress falls to France and the forthcoming meeting will be of the most vital interest to every medical man who saw service in the World War.

All medical men of every profession, as above enumerated, are therefore eligible to attend the Paris Congress. Wives and daughters of such are also invited. The admission will be but Fifty Francs (about \$2.75) for men, and Twenty Francs for ladies.

The French Nation will give a most cordial welcome to those attending this Congress. French Railways will grant half fares. There will be special entertainment provided for the visitors.

The United States Lines will be glad to cooperate with physicians who desire to attend these conferences. There will be convenient schedules of the world's greatest steamship, the *Leviathan*, and the world's greatest cabin ship, the

America, which with the other vessels of the Lines will afford accommodations to fit any purse. Moreover, there will be Veterans Tours run during April, that will give those inclined to go over with the World War Veterans and their families, most inexpensive, yet most comfortable accommodations, in the special Tourist Cabin (formerly third cabin) which is used exclusively by the Lines for Veterans, Teachers and Students. Hundreds during the present year have found these quarters most comfortable.

For full information about the above Congress and for schedules and rates ask any General Agent of the Lines.

New England Division of the American Nurses' Association

THE New England Division of the American Nurses' Association will hold the 1925 Convention in Boston June 3-4-5, with Headquarters at The New England Women's Club, 585 Boylston Street, Boston, Mass.

The hotels within walking distance of headquarters are: The Brunswick, Copley Square, Copley-Plaza, Lenox, Vendome, Victoria and the Westminster.

The Chairman of The Arrangements Committee is Miss Carrie M. Hall, Superintendent of Nurses, Peter Bent Brigham Hospital, Boston, Mass.

MARY ALICE McMAHAN,

Chairman of Publicity, Boston State Hospital, Boston 24, Mass.

The American Congress on Internal Medicine

THE American Congress on Internal Medicine will hold its ninth annual clinical session in Washington, D. C., from March 9-14 with headquarters at the Hotel Mayflower.

Annual Meeting of the National Tuberculosis Association

Reduced Fare

REDUCED fares on the basis of one and one-half fare on the certificate plan will be granted to delegates attending the annual meeting of the National Tuberculosis Association by the various passenger associations. This is on condition that 250 or more persons present certificates showing the purchase of one-way tickets to St. Paul or Minneapolis from points from which the local one-way fare to the place of meeting is 67 cents or more.

Certificates which show the purchase of tickets on the dates given below under "Going Dates of Sale," when validated by the ticket agent, of the M. & L. R. R., Minneapolis, Minn., will be honored for return tickets at one-half fare, provided they are presented to the ticket agent not earlier than June 15, nor later than June 24.

Full fare will be paid on the going trip and tickets for the return journey will be sold at one-half fare, via the same routes as traveled on the going trip, to delegates and depending members of their families.

The reduced fare for the return journey will not apply unless the holder of a certificate is properly identified by Mr. Philip P. Jacobs.

Be sure when purchasing your going ticket to ask the ticket agent for a certificate.

The Annual Dinner Meeting of the Boston Health League

THE annual dinner meeting and election of officers of the Boston Health League was held on Wednesday evening, February 11th, at the Hotel Kenmore, with 75 people of prominence in Public Health and Welfare work in attendance.

The business meeting preceded the dinner and resulted in the election of the following: President, Dr. Francis X. Mahoney, city health commissioner; vice-president, Rev. Fr. George P. O'Connor; secretary, Dr. Merrill E. Champion; treasurer, Dr. Richard G. Wadsworth; executive secretary, Dr. Charles F. Wilinsky.

The following executive committee was elected in addition to the newly elected officers: Dr. Harold DeW. Cross, Director, Forsyth Dental Infirmary; Miss Ruth V. Emerson, Social Service Dept., Boston Dispensary; Miss Frances Stern, Director, Dietetic Service, Boston Dispensary; Dr. Roy Cushman, Metropolitan Chapter, Red Cross; Dr. Robert Osgood, Professor, Orthopedic Surgery, Harvard Medical School; Dr. Steven Rushmore, Dean, Tufts Medical School; Miss Frances Patterson, Director, Community Health Association; Miss Bernice Billings, Director, Boston Tuberculosis Association; Mr. Horace Morison, vice-president, Council Social Agencies; Dr. Cogan, Medical Director, School Medical Inspection.

At the conclusion of the business meeting, an excellent dinner was served, and among those seated around the table were: Reverend George P. O'Connor, vice-president of the League; Professor and Mrs. Milton J. Rosenau; Dr. David Edsall, Dr. Eugene Kelley, state commissioner of health; Dr. Robert Osgood, professor, Orthopedic Surgery, Harvard Medical School; Mr. George Phelan, manager, White fund; Dr. C. Morton Smith, president, Suffolk District Medical Society; Dr. Richard Smith, Professor, Child Hygiene, Harvard School of Public Health; Dr. W. P. Bowers, MEDICAL AND SURGICAL JOURNAL; Dr. and Mrs. Orville Chadwell, Professor, Pediatrics, Boston University School of Medicine; Dr. Dowling, Superintendent, Boston City Hospital; Mr. and Mrs. Horace Morison; Mrs. Frederick T. Lord, Women's Municipal League; Miss Wilson and Miss Zouter, Boston Lying-In Hospital; Dr. and Mrs. Lowe, Mass. General Hospital; Dr. Fred Bailey, Dr. John Ceconi, Dr.

and Mrs. Wilinsky, and Mr. Steven Maloney, Boston Health Department; Dr. Otis and Miss Bernice Billings, Boston Tuberculosis Association; Miss Patterson, Director, Community Health Association, Miss Peabody, Vice-president, Community Health Association, and others.

At the conclusion of the dinner, Father O'Connor, who presided, introduced Dr. David Edsall, dean of the Harvard Medical School, who praised the health league for its splendid work. He made the point that the Boston Health League is a pioneer in its work obtaining, as it does, efficient results through municipal, philanthropic and educational coöperation.

Dr. Eugene R. Kelley, state commissioner of public health, assured members of the league of the coöperation of the state agencies in its work. He pointed to the excellent results secured in baby hygiene work through the health units.

Mr. George Phelan, manager of the White fund and representing the Mayor, alluded to the latter's interest in public health and his appreciation of the field of preventive medicine and spoke of the aid that he had furnished the trustees of the fund which influenced them greatly in deciding to erect a chain of health units from the income of the White fund.

Mr. Horace Morison, former executive secretary of the league, alluded to the various developments and progressive improvements in health work in Boston because of the activities of the League in the program it had sponsored.

Dr. Wilinsky, executive secretary, outlined the progress made by the organization during the past year. He first emphasized the purpose of the Boston Health League, made up of 36 public and private welfare agencies. It is to promote the greatest possible efficiency and economy in the development and dispatch of public health work and the maximum of service through the close coöperation and coördination of the work of the existing public health agencies in the city of Boston. He pointed out the three phases of the Health League work. First, the organization of the league itself, by the sounding and testing of the sentiment of every individual agency. The second evolution, the tying up of the agencies and the development of fixed principles and ideals; thirdly, the formation of a definite program which had in mind two distinct things: first, the backing up of the municipal health department in the development of a preventive program and second the correlation of all of the public and private health agencies in Boston for the development of a unified program with the avoidance of duplication and waste of effort. He complimented all the agencies, both in and out of the league, who have worked incessantly for the development of its principles and as a result of this correlation enumerated several evidences of the standardization of public health work in Boston and progressive improvement in the

work first attempted. He alluded to the distinct program carried on both at the Blossom St. unit and at the new North End White Fund unit, where a number of constituent agencies of the league are working together for the carrying on of a program which includes pre-natal service, infant and child hygiene which in itself includes dental service, nutrition service, posture, eye, mental and periodical physical examinations. An important development resulting from the close tying up of the agencies in the league is the taking over by the city, baby hygiene conference work, infant and child hygiene stations and the latest progressive development is the tying up of the Boston Health Department with the pediatric divisions of the Harvard Medical, Tufts Medical and the Boston University School of Medicine. The latter institutions by the program arranged to furnish the highest type of trained pediatric personnel to conduct the infant and child conference work and avail themselves of an opportunity to use these stations for teaching purposes. This assures Boston an infant and child hygiene program superior to any city in the United States, because of the very close tying up with the medical schools. Dr. Wilinsky took advantage of this opportunity to express appreciation and to endorse the splendid cooperation of all health and welfare agencies that are members of the league as well as others who have unhesitatingly contributed in the development of a public health program which bids fair to give Boston a priority in public health it has enjoyed in many other things closely interrelated to health and welfare.

Dr. Milton J. Rosenau then entertained the company with an oration under the title of "The Malthusian Doctrine." He referred to the interesting and ingenious arguments of Malthus who in his writings had attempted to demonstrate the dangers which are in store for the human race when the world may have a population in excess of its food resources, for according to natural laws, if unchecked, the population tends to increase in a geometrical ratio, whereas the food resources increase only in an arithmetical ratio and the great reasons why this crisis had been postponed were because of the death rate due to wars, pestilence and famine. Dr. Rosenau suggested that with the advance in the many agencies concerned in the prevention of disease and prolongation of life, this theory of Malthus might be considered as more probable of demonstration in the future, but looking at it in a more hopeful spirit he felt that he could not accept the interpretations of the estimates as made by Malthus.

He cited figures which tend to show that as the human race improves in the average development of intellect there is a tendency to diminish fecundity as recorded in the average number of children in the families of college graduates, and although the rugged and virile

but less well educated strata of society are increasing far more rapidly than the more intellectually developed, there would come a time when there would be a more general education of the people which would, according to precedent, reduce the birth rate. He felt confident that with a better conception of the ethical problems of life and the development of the race an enlightened and cooperative spirit would lead to a solution of the problems of the inherent dangers of over-population.

His prophecy was that existence on this planet would approach the ideal with the jealousies and conflicts of the present day eliminated.

He closed with a quotation from a former address:

The student of preventive medicine frankly faces the fact that the mass of mankind is diseased, ignorant, and unmoral. He has dedicated himself to the task of helping to cleanse, teach, and regenerate.

Preventive medicine dreams of a time when there shall be enough for all and every man shall bear his share of labor in accordance with his ability, and every man shall possess sufficient for the needs of his body and the demands of health.* These things he shall have as a matter of justice and not of charity. Preventive medicine dreams of a time when there shall be no unnecessary suffering and no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them, but with the joy that we may aid in their coming to those who shall live after us. When young men have visions the dreams of old men come true.

The meeting as a whole was interesting and the intellectual features inspiring.

*These concluding sentences are paraphrased from Victor C. Vaughan's admirable address on the "Philosophy of a Scientist," Science, August 23, 1912, N. S. Vol. xxxvi, No. 921, p. 225.

Wachusett Medical Improvement Society

THE regular monthly meeting of the Wachusett Medical Improvement Society was held at Holden District Hospital on February 4th. The paper of the evening was by Dr. Joseph Mueller, of the State Sanatorium at Rutland, entitled: "Easy Methods in Diagnosis and Treatment of the Diseases of the Skin as Taught by the Hungarian School of Dermatology," and was especially practicable and interesting. The paper was freely discussed.

The next meeting of the Society will be held at the Holden District Hospital on Wednesday evening, March 4th. Dr. Ernest L. Hunt of Worcester City Hospital will favor the Society with a paper entitled: "Surgical Treatment of Stomach Cases."

DR. O. D. PHELPS, Secretary.

SOCIETY MEETINGS

- Essex North District Medical Society**
May 6, 1925. Annual meeting at Lawrence.
- Franklin District Medical Society**
The meetings of the Franklin District Medical Society will be held on the second Tuesday of March and May.
- Hampden District Medical Society**
Meeting to be held on the third Tuesday in April.
- Hampshire District Medical Society**
The meetings will be held the second Wednesday of March and May.
- Middlesex East District Medical Society**
Wednesday, March 13. Harvard Club. Dr. John H. Cunningham, "Urinary Retention: Its Significance and Treatment."
Wednesday, April 15. Harvard Club.
Wednesday, May 13. Colonial Inn, North Reading.
- Middlesex North District Medical Society**
April 29, 1925.
- Middlesex South District Medical Society**
Winter Schedule—The plans for winter meetings of the Society include the stated meeting in April, two hospital meetings, and five meetings to be held in conjunction with the Suffolk District Medical Society and the Boston Medical Library (two surgical, two medical, and one general).
- Norfolk District Medical Society**
March 31, 1925. Tufts College Medical School. This meeting given over to Drs. Leary and Watters for the purpose of giving us a medical examiners' talk.
- Norfolk South District Medical Society**
Meetings will be held the first Thursday of each month to May, inclusive, at 12 noon, at the Norfolk County Hospital, South Braintree.
- Suffolk District Medical Society**
March 25. Medical Section, in association with the Middlesex South District Medical Society. "The Treatment of Pneumonia." Dr. Edwin A. Locke.
April 29. Annual meeting. "Hypertension and Longevity." Dr. Harold M. Frost.
- Worcester District Medical Society**
March 11, 1925. St. Vincent's Hospital, Worcester. Papers will be read by the members of the hospital staff.
April 9, 1925. Subject and speaker to be announced.
May 14, 1925. Annual meeting.

If you desire further information in regard to these meetings write to the Secretaries of the District Medical Societies (listed on page xiv of the Advertising Section). The Massachusetts Medical Society Directory contains their addresses.

BOOK REVIEW

International Clinics. Volume IV. Thirty-fourth Series, 1924. Philadelphia: J. B. Lippincott Company.

The first section of this volume of interesting original articles deals with the "Diagnosis and Treatment of Certain Disease Entities." Major James F. Coupal's discussion of *blastomycosis* is based on reports of six cases that have been studied with extreme thoroughness. The lucidity of the text is increased by 19 excellent illustrations.

Foster M. Johns and I. M. Gage report their observations on *granuloma inguinale* and cultural studies of the Donovan bodies. One interesting statement is that if granuloma is a bacterial disease, then we would possess the first synthetic specific drug (tartar emetic intravenously) against the vegetable parasites in the history of medicine. They were unable to cultivate the Donovan bodies.

Seale Harris emphasizes the opinion that *pellagra* is not due solely to a vitamin deficiency, but that it is probably an infection to which resistance is lowered by an unbalanced diet.

Matthew W. Perry briefly discusses the role of the fusiform and spirillar organisms in *Vincent's Angina* and in other conditions not so diagnosed. Treatment with neo-arsphenamin intravenously and 10 per cent. arsphenamin in glycerin locally has been effective.

Roland C. Conner and Lewis B. Bates report a careful study of *bacillary dysentery* in Ancon Hospital from 1919-1923. They stress its frequency and severity and urge more careful diagnosis. No great faith is placed in the use of serum treatment.

Dr. N. P. MacPhail advises the use of intramuscular injections of 15 to 22½ grains of quinine in acute malaria, which may prove a life saving procedure, while the danger of tissue necrosis is comparatively negligible. The dose should be given twice daily. For the subsequent treatment 25 grains daily are used, and for this oral administration the more insoluble salts are equally effective.

cedure, while the danger of tissue necrosis is comparatively negligible. The dose should be given twice daily. For the subsequent treatment 25 grains daily are used, and for this oral administration the more insoluble salts are equally effective.

Lieutenant-Colonel James Cran gives an excellent account of the *yellow fever* epidemic in Blize. The epidemic was controlled only after drastic prophylactic measures. The Nogouchi serum treatment and prophylactic vaccination proved successful.

The section of "Diagnosis and Treatment" is headed by an article on *intestinal obstruction* by Sterling Bunnell. This is a masterly, thorough, yet clear and concise presentation of the mode of formation of the fatal toxin of intestinal obstruction and of the principles of treatment when obstruction exists. The deductions are based chiefly on experiments with dogs. The higher the point of obstruction the more lethal is the toxin. The toxin is formed in the intestinal mucous membrane and is rapidly absorbed through the lymphatics and blood vessels of the damaged portion. An immunity may be acquired by sublethal doses of the toxin, which accounts for the better resistance of patients with a previous partial obstruction. Operation should be preceded by intravenous salt solution and gastric lavage. The operative technic is based on the principles of stopping the absorption and formation of toxin, relieving distension, and establishing the fecal flow. Enterostomy should always be done in cases with great distension. Special types of obstruction, including that first appearing post-operatively, are considered in more detail.

H. H. Hazen writes at some length on the subject of *eczema*, concluding that there is no such entity. He advocates the use of X-ray in its treatment.

Elliot B. Edie discusses and urges the more general use of *periodic health examinations*.

Albert J. Ochsen reports his opinion of the value of *X-ray and radium* in the treatment of cancer. Their use should not delay operation in hope of a cure in an operable case except for superficial skin cancers. Operation should be resorted to for only the earliest cases of cancer of the cervix. Radiologic treatment in general should be a preliminary to operation or palliation of inoperable cases.

F. G. Banting gives a clear account of the principles and use of *insulin* in diabetes.

Frederick Christopher reviews the subject of *acute pancreatitis* and reports a case.

In his discussion of *syphilis of the thyroid* Ernest Schulman states that syphilis is a cause of exophthalmic goiter.

Henry H. Turner reports three cases of *calcification of the pericardium*.

Maud E. Abbott and Wilfred T. Dawson give an excellent, thorough and clear account of *congenital cardiac disease* and its embryological basis. Profuse illustrations, chiefly diagrammatic, are advantageously used.

In the first article in the section of "Pediatrics" Alfred Hand expresses his belief in the beneficial effect of *tonsillectomy on existing visceral disease*, especially endocarditis.

James Burnett covers the field of *mental disease in infancy and childhood* in a clear, concise manner.

The section on "Surgery" is headed by a generously illustrated analysis of the use of *internal fixation in fractures* by E. L. Ellason and Drury Hinton.

Paluel J. Flagg does not consider that in general the advantages of *ethylene anesthesia* outweigh its disadvantages.

Carl Dac. Hoy has written a very good review of *fractures of the lumbar spine*. He emphasizes the value of early laminectomy and avoidance of catheterization.

The "Industrial Medicine" section is represented by a general survey by Leland E. Cofer in which he discusses the *practical application of industrial medicine*.